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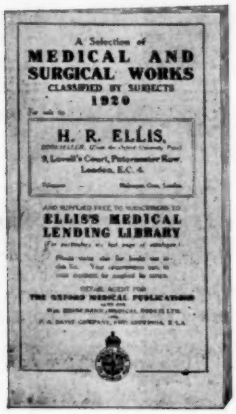

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GENTLEMEN,—While I highly appreciate the honour of giving this Packard Lecture to the Philadelphia Pediatric Society, I realise the impossibility of making any medical contribution to your specialty and the necessity of limiting myself to the public health aspects of my subject, in which I have for many years been concerned. I also appreciate the difficulty arising from the fact that my remarks relate to obstetrics more than to pediatrics. Although I do not venture to define the line of demarcation between these special branches of medicine, much of the success of the work of pediatrists depends on the normality of the expectant mother and of the unborn infant, not only in regard to mental development, but also more generally; and the conditions likely to aid in securing normal birth and adequate skilled care in the first weeks after birth are of vital interest to you.

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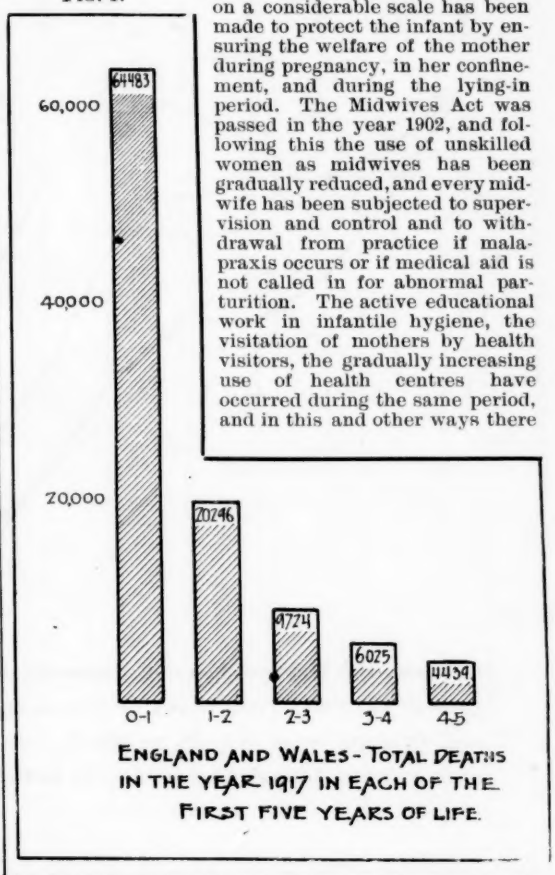
The lowered birth-rate has undoubtedly been one of the factors leading to recent activities to secure the preservation of child-life. The single statement that in England and Wales 9000 fewer births took place weekly in 1914, before the effect of the war began to be felt, than would have occurred if its population had experienced a birth-rate equal to that of the year 1876, and that in consequence a decrease of about half a million fewer births resulted, serves to remind us that although in England our growth of population by excess of births over deaths still amounts to 1 per cent. per annum we are approaching, unless the course of events is changed, a period when natural growth of population will cease, and England—and I may also add America—will be dependent on immigration for further increase of population.

In passing from this aspect of the subject it is not inappropriate—the child being the wealth of the future—to recommend the avoidance of "the sad heresy of celibacy" (*Punch*) and the contracting of early marriages, especially by those who now disproportionately avoid them, as necessary not only in restoring and maintaining the success of family life, but also in securing the same standard of sexual morality for both sexes and in avoiding the ravages of gonorrhœa and syphilis, two of the greatest enemies of child-life and of maternal health.

Dr. Emmett Holt,[1] in an interesting historical sketch of infant mortality, has drawn attention to some of the more important motives which have led to the increased attention which has been given to this subject in the last 40 years. In France, which led the way in respect of the day nursery, of societies for encouraging maternal nursing, and of *gouttes de lait*, the failure of the population to increase undoubtedly had great influence in securing action. In England attempts at controlling infant mortality began on definitely public health lines. But it was not until 1902 in England that a definite and continuous reduction in infant mortality began; and in the production of this result a large share of credit must be given to the "concentration on the mother and the child" which has been a striking feature of the last 20 years.

It is chiefly during the last ten years that action has extended towards the point at which logically it ought to have begun, and organised effort on a considerable scale has been made to protect the infant by ensuring the welfare of the mother during pregnancy, in her confinement, and during the lying-in period. The Midwives Act was passed in the year 1902, and following this the use of unskilled women as midwives has been gradually reduced, and every midwife has been subjected to supervision and control and to withdrawal from practice if malapraxis occurs or if medical aid is not called in for abnormal parturition. The active educational work in infantile hygiene, the visitation of mothers by health visitors, the gradually increasing use of health centres have occurred during the same period, and in this and other ways there has been increasing effort to restore to its former integrity family life, which had been seriously encroached upon by the conditions of town and industrial life. It is not one of the least of the valuable by-products of the calamitous World War that it has done much to restore the status and ideal of motherhood, and to make us realise that on this depends the future well-being and happiness of mankind.

FIG. 1.



In considering infant mortality we first of all think of it as part of general mortality at all ages. The primary objects of preventive medicine are to transfer as many deaths as possible from the earlier to the later periods of life, to prevent the larger mass of non-fatal illness which, from the point of view of the community, is even more serious than early death, and to raise the general standard of health of the population.

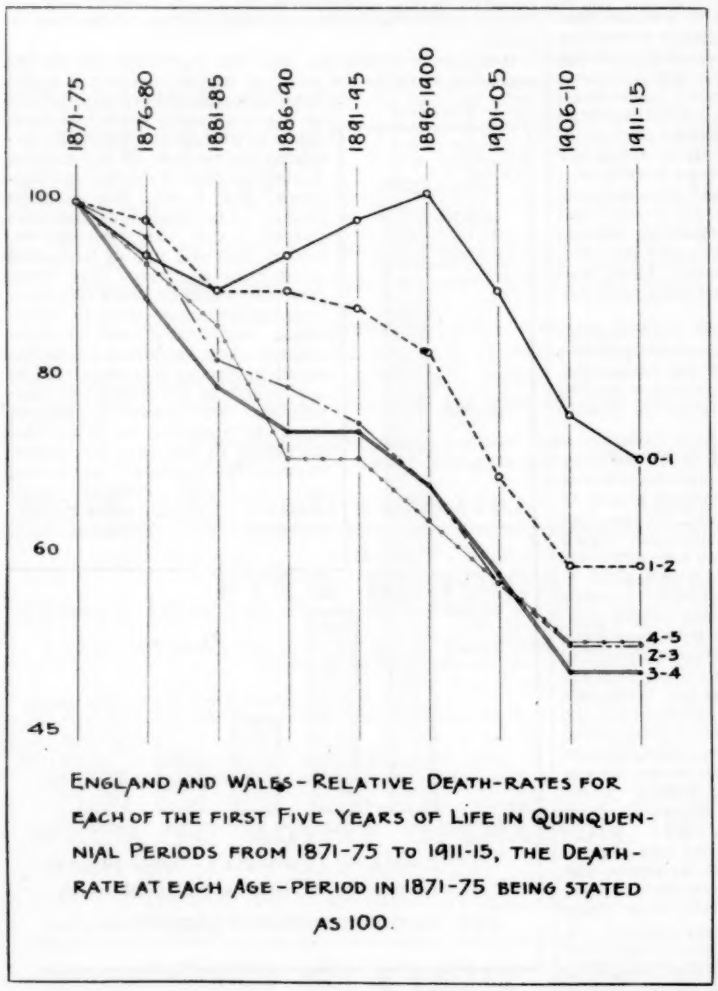
We scarcely realise the difference between the number of deaths in each of the first five years of life. This is shown graphically in Fig. 1.

[1] Archives of Pediatrics, vol. xxx., No. 12, December, 1913.

Fig. 2 shows how much more slowly infant mortality in infancy has been brought under control than mortality in the next four years of life.

In view of the commonly entertained error that infant mortality may, on the balance, be selective in character, securing survival of the more robust, it is noteworthy that the parts of England which have the highest infant mortality continue at higher ages to experience a higher death-rate than more favoured districts. Any possible elimination of the weakest by natural selection which may have occurred is accompanied to a preponderant extent by the manufacture of weaklings and by an excessive death-rate at older ages, due to continuance throughout the whole of life of the evil conditions which caused the excessive infant mortality.

FIG. 2.



ENGLAND AND WALES - RELATIVE DEATH-RATES FOR EACH OF THE FIRST FIVE YEARS OF LIFE IN QUINQUENNIAL PERIODS FROM 1871-75 TO 1911-15, THE DEATH-RATE AT EACH AGE-PERIOD IN 1871-75 BEING STATED AS 100.

From the economic standpoint attack on infant mortality offers abundant scope for action. Here is a period representing about one-eightieth part of the whole life; but in this period 1 out of 9 or 10 total deaths occurs; furthermore, the state of health in infancy in large measure determines the health standard of the whole of life.

From the same standpoint the mortality under one month, first described by Ballantyne as neo-natal mortality, also is especially important. At least one-tenth of the total deaths at all ages occur in infancy; one-half of these infantile deaths occur within the first three months, one-third within the first month, and one-fifth within the first week after live birth.

If, therefore, it were practicable to halve these early or neo-natal deaths a greater saving of life could be obtained than by halving the death-rate at any other period of life of equal length. There is ample work for further preventive measures against infant mortality in the last 11 months of the first year; but the most fertile and least tilled soil is that of the neo-natal period.

In view of the statement commonly made that infant mortality during the first month is chiefly due to developmental conditions, and is practically beyond control, let us examine mortality in this period more closely. In Fig. 3 the share which developmental and wasting diseases have in causing total infant mortality is shown. It will be noted later that it bears a very varying part in different counties of England. In this diagram the above group of diseases includes deaths from premature birth, congenital defects, injury at birth, want of breast milk, atrophy, debility, and marasmus. I have purposely grouped all these together because of the unsatisfactory certification of causes of death of infants dying in the earlier weeks of life. Throughout the whole of infancy medical certification of deaths is much less satisfactory than for deaths at any subsequent age, and it is of but little use to advise physicians to be more accurate in their certificates until we have more exact pathological knowledge of the causes of early infant mortality. Some valuable research work has been done in this field, but it needs to be greatly extended, and such work would doubtless add greatly to our armamentarium against early infant mortality.

In an official report I have analysed the above group of causes of death further, and it appears that nearly 90 per cent. of the deaths from premature birth and congenital defects, and about 40 per cent. of the deaths from atrophy, debility, and marasmus occur in the first month after birth. It appears, further, that there has been much transfer of certification between these various headings, and that it is probably not justifiable to infer, as has often been done, that the mortality from premature birth has increased in recent years.

NEO-NATAL MORTALITY NOT IRREDUCIBLE.

We are on safer ground when we base our conclusions on total deaths in the first week and in the first month after live birth; and in view of the accurate registration of births and deaths in England I may be excused for taking illustrations from past official English reports. The facts set out below give an effective quietus to statements that neo-natal mortality is practically irreducible.

The following figures from my official report on Infant and Child Mortality (Cd. 5263), which gives death-rates for the year 1908, show the relative proportion of mortality in different parts of infancy, and the neo-natal mortality in different areas.

Infant Death-rate per 1000 Births.

—	Under one week.	Under one month.	Total under one year.
England and Wales	24·3	40·3	120·4
County of Durham	33·8	52·1	151·0
,, Glamorgan ...	24·8	46·1	154·3
,, Hereford	18·2	31·2	75·8
,, Oxford	20·9	30·6	73·0

Infant Death-rate per 1000 Births among—

	Infants in first week after birth.		Infants in first month after birth.
Workington	41·4	Workington	61·0
Dewsbury	41·4	Blyth	58·0
Batley	37·5	Batley	57·7
Barnsley	31·2	Dewsbury	56·7
Bradford	30·7	Aberdare	49·4
St. Helens	30·3	Walsall	49·3
Doncaster	19·7	Guildford	29·4
Edmonton	19·1	Holborn	28·0
Crewe	19·0	Penge	27·2
Heywood	16·9	Watford	25·9

It is evident that neo-natal mortality varies greatly in different communities. It varies also greatly in different sections of the same district, whether it be urban or rural. There is no reason to assume that there are any such general variations in the vitality or physical efficiency of mothers as will explain these differences; and we must, I think, conclude that a large share of the loss of precious lives shown above is caused by removable influences, post-natal, as well as natal and pre-natal.

Dr. T. H. C. Stevenson in the English Registrar-General's Annual Report for 1913 has given data from which it can be inferred that in England and Wales nearly 25 per cent. of the total births occurred under circumstances involving a sacrifice during the first month after birth of nearly 50 per 1000 of the infants born; while for over 2 per cent. of the births the corresponding sacrifice was only 20 per 1000 of those born. Nor could social position be brought forward in explanation of this extraordinary discrepancy; for in the most unfavourable group were infants of waiters, navvies, textile-workers, dress-makers, coal-miners, and many others; while in the favourable group were infants of copper-miners, motor mechanics, hosiers, boot dealers, glove-makers, and many others.

We must, therefore, accept the highly satisfactory conclusion that *this early infant mortality is in large measure preventable.*

DO INFANTS "START FAIR" AT BIRTH?

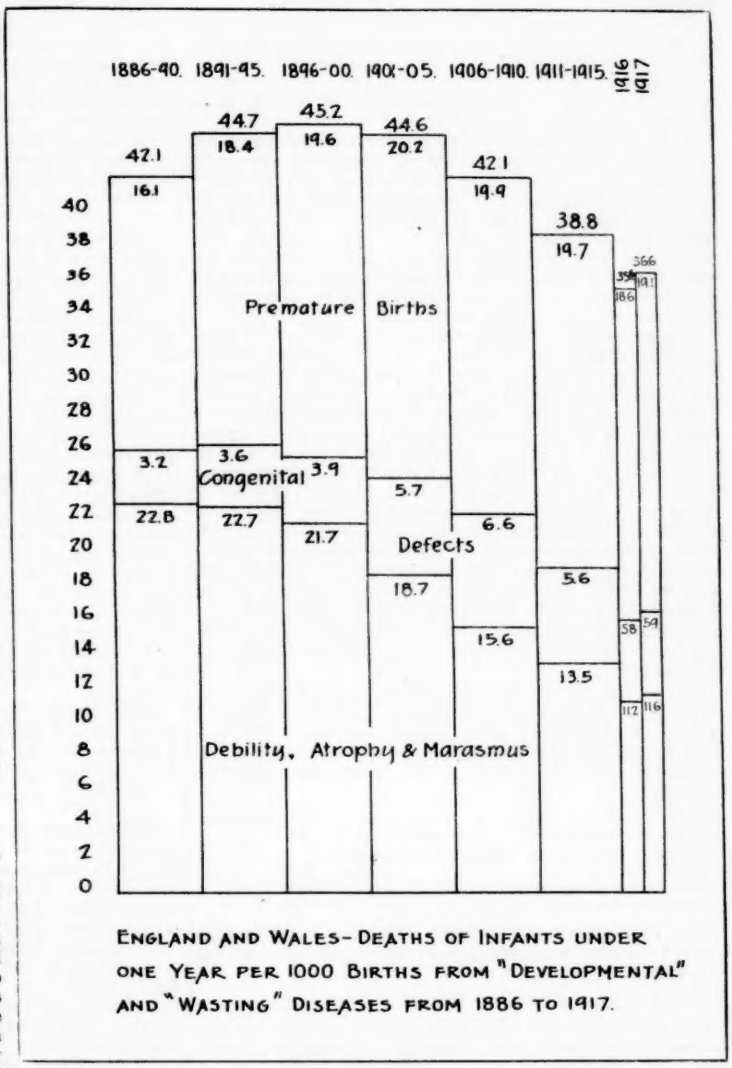
Before considering means for preventing preventable mortality, we may glance at the fellow-fallacy to the one exposed above—viz., that infants start fair at birth, or in other words are born in a fairly equal state of health. It is worth while to pursue this inquiry, inasmuch as incidentally it reveals some of the more important lines along which the prevention of neo-natal mortality must proceed. Converging lines of evidence demonstrate the error of the above statement:—

(*a*) The enormous differences in mortality in the first week and in the first month after birth must in large part be due to differences existing at the time of birth. If further evidence is required, it is furnished by

(*b*) The varying prevalence of syphilis in different circles. Thus Dr. Stevenson has shown that the death-rate from syphilis in illegitimate infants is eight times as great as that of legitimate infants; and although similar statistics cannot be given for other classes, we know that syphilis is a large and varying cause of illness of mothers, of stillbirths, and of serious disease and mortality in infants born alive.

(*c*) The statement that infants at birth "start fair" receives no support from the statistics of stillbirths. For several years in England stillbirths from the twenty-eighth week of pregnancy have been required to be notified to the medical officer of health. It is likely that the law has been complied with to a varying extent in different localities; but this can scarcely explain the fact that while, on an average, stillbirths number 3 to every 100 live births, in some localities the proportion is as high as 7 or 8. Given such variations, it is inconceivable that they can fail to be associated with corresponding variations in the health of the mothers and of infants born alive under corresponding conditions.

FIG. 3.



ENGLAND AND WALES—DEATHS OF INFANTS UNDER ONE YEAR PER 1000 BIRTHS FROM "DEVELOPMENTAL" AND "WASTING" DISEASES FROM 1886 TO 1917.

(*d*) The experience of illegitimate infants forms a striking reflection on the opinion that infants start fair at birth. Although the number of illegitimates is small in proportion to the number of births in matrimony, they form a field of social and public health work which, if cultivated, would materially reduce infant mortality. This is urgently called for by every humanitarian instinct. In the past it has been thought necessary—as likewise in the treatment of venereal diseases—to associate such assistance as is doled out with conditions marking the donors' sense of the moral obliquity of the recipient,

which has rendered help in large measure futile. Among the most sinister of methods of helping unmarried mothers is the one which insists on parting the mother and infant as soon as possible; and yet this has been the method adopted by many agencies in this field, regardless of the elementary fact that the most hopeful action, not only in saving the life and maintaining the health of the infant, but also in lifting the mother out of the morass into which she has fallen, consists in rousing and maintaining maternal love.

(*e*) A most important factor in the causation of neo-natal mortality, and the saddest evidence of all that infants do not start fair, consists in the enormous variations in the incidence of sickness and deaths of mothers during pregnancy and in child-bearing.

This can be seen for England and Wales in the map given opposite p. 12 of my Report (1914–15) on Maternal Mortality in Connexion with Child-bearing (Cd. 8065).

We can divide this mortality into two groups—due to sepsis and due to other conditions—of which renal disease is the most important.

It is doubtful whether any decrease in the death-toll from causes other than puerperal sepsis has occurred. On the other hand, puerperal sepsis has shown a marked decline, and it is impossible to dissociate this from the passing of the Midwives Act, 1902, and the administrative control which has been secured over midwives, who now attend about three-fourths of the total births in England and Wales, subject to the rigid condition that medical assistance must be obtained in the event of abnormality in the case.

It is more than unsatisfactory, however, to find that, notwithstanding the teaching of Semmelweis and of Oliver Wendell Holmes, and the discoveries of Pasteur and their application in Listerism, it is still true in England that for every 700 infants born alive one mother loses her life from puerperal sepsis; that a much larger proportion are invalided from the same cause; and to recall that this mortality and disability occur chiefly as the result of neglect or ignorance in the practice of individual obstetricians, medical or midwives, and from the failure of the community and its representative public health authorities to provide adequate skilled assistance in the one chief event in the national life with which is wrapped up the future and the future welfare of mankind. It is difficult to obtain comparable American statistics, owing to defects in birth registration; but the position in the United States is not less unsatisfactory.

The record for diseases commonly regarded as non-septic is even more unsatisfactory. No improvement can be seen during the present century. Of the total mortality due to pregnancy and parturition the proportion due to different causes is approximately as follows:—

Puerperal sepsis	31·7 per cent.
Puerperal albuminuria and convulsions...	21·6 ,,
Puerperal hæmorrhage and other accidents of childbirth	25·5 ,,
Other puerperal conditions	10·4 ,,
Accidents of pregnancy	10·8 ,,

The bare statement of facts gives important indications of the degree to which preventive measures might be adopted.

SURVEY OF POSSIBILITIES OF IMPROVEMENT.

The preceding very imperfect review of some of the causes of neo-natal and maternal casualties should naturally be followed by a survey of possibilities of improvement. As a general hygienist I cannot discuss the special obstetrical, gynæcological, and pediatric problems involved, but as these problems are coming more and more within the scope of public health administration I may be allowed to sketch what is being done by public health authorities, and what it appears to be desirable to do generally, in order to enable every mother and infant to have the best care which modern medicine renders available.

(1) *Need for Continuity of Supervision.*

I would plead that this subject of care of the mother and the newborn infant should not be placed in a compartment separate from general medical care on the one hand or from general public health administration on the other. At every point the general hospital or private physician will be needed; and departments of public health work must be called in aid.

Still less should there be a lack of continuity of observation and care during pregnancy, post-partum, and in infancy, even though different physicians are employed. For medical students one of the greatest desiderata is that they should become practically and continuously acquainted with patients while these are under supervision in pregnancy, during and after parturition, and in the subsequent months when there are two patients instead of one. This evidently can only be secured by having at hospitals in all medical teaching centres, pre-natal clinics, pre-maternity beds for complications of pregnancy, lying-in beds in the hospital, as well as a home clientele, and beds for complications in or after parturition; a post-natal clinic, and a complete system of home visitation of mothers and infants; a clinic for the period between infancy and school life; and a school clinic. And, although perhaps in less elaboration, the above enumeration represents the essential needs of every community.

(2) *Ante- and Post-natal Clinics.*

The best plan for securing a pre-natal clinic is to begin with a post-natal clinic for mothers and infants. Dr. F. S. Kellogg has pointed out that all post-natal care is pre-natal care for the next infant; and that no inconsiderable share of illness of mothers, and of consequent failure in their efforts at child-bearing, is due to neglect of supervision and care after the ten days of the parturient period.

The amount of life- and health-saving attainable by a pre-natal clinic is less than can be secured by improved care in the lying-in period; but probably one-half of the still-births could be prevented, and much of the existing discrepancy in infantile death-rate during the first week after birth could be removed by increased care during pregnancy. Pre-natal clinics have already been largely developed both on their educational and clinical sides; and on the clinical side, in addition to the treatment of minor ailments, the health prospects of both mother and infant can be improved by measurement of the pelvis, ascertainment during advanced pregnancy of the presentation, periodical testing of the urine, and determining whether the mother has become infected by syphilis or gonorrhœa, and by appropriate action in each case.

Although no further mention is made here of the diagnosis and treatment of syphilis during pregnancy, I regard this as one of the greatest gains obtainable from the ante-partum observation of mothers.

(3) *Skilled Care During Parturition.*

Skilled care during parturition is even more important than ante-partum care; and it is at this period that the greatest saving of both maternal and infantile life can be secured. It is, I believe, agreed among obstetricians that more infants of viable age die during labour from injury or accidental complications than die from disease during pregnancy. Dr. Eardley Holland states that of 100 dead-born viable fœtuses he found that generally 40 were macerated and 60 were fresh. In a preliminary statement as to an investigation made for the Local Government Board of England he reports that post-mortem examination in about half of the fresh dead-born fœtuses showed severe cerebral injury in the form of cerebral hæmorrhage and tearing of the septa of the dura mater, owing to excessive stress on the cranium in labour from such causes as delivery by forceps or versions carried out for abnormal presentations.

It has been suggested with doubtful accuracy that the administration of chloroform in parturition has increased puerperal mortality, because of the increasing frequency of operative interference. Protracted delay and consequent moulding of the soft cranial bones in very narrow or otherwise obstructive pelvic passages may, however, do harm as well as hasty delivery by forceps with an undilated cervix.

It should be noted that difficult delivery is an important factor in the production of mental impairment of the child; and in every instance of difficult labour an accurate and early diagnosis of conditions is required in order that the best treatment may be given.

The details of care required in parturition can only be briefly indicated. They include the provision of a trained obstetrician (physician or midwife) for every case, with consultative assistance when required; and adequate nursing help in every case. The strict enforcement of surgical cleanliness in technique should not require to be emphasised; and it is a subject for grave thought that there is still lack in this respect. This lack is not likely to be completely met until the next condition is fulfilled; a condition so important that I give it a separate paragraph.

(4) *Provision of Maternity Homes and Hospitals.*

A greatly increased provision is needed, especially in smaller towns and in country districts, of maternity homes and hospitals where mothers may be confined. These are required, first of all, because the mother must have adequate rest during this trying period of her life. They are required also because many of the homes of the poor are not satisfactory to have confinements in. It is to our shame that this is so, but it is so all the same. Take a simple fact like this: At the last census, in large towns in England—and I do not think the house famine in large towns is less severe here—one out of every seven families lived in one or two rooms, one out of four, or more accurately 27 per cent., lived in dwellings containing one, two, or three rooms. In these small tenement dwellings every function of life has to be carried on; children are born in them and they die in them; and it is evident that, so far as a large proportion of those homes are concerned, unnecessary risks are incurred in connexion with the lying-in period. You may say that this is a strong reason for housing reform. This is so, but the provision of adequate housing will take time. Furthermore, even satisfactory houses without proper help during the lying-in period do not suffice, and, both because of functional and structural defects of the home, it is extremely important for a large proportion of lying-in women that they should have the rest and superior attendance which can be given in a lying-in home, but which are unattainable in their own homes. I know of no social work which is so certain to give immediate results in the saving of maternal and child life, in reducing invalidism of mothers, and in enhancing the national welfare as the immediate provision in every area throughout the country of maternity homes and hospitals for a considerable proportion of normal confinements and for the majority of complicated cases.

(5) *A Raised Standard of Midwifery Practice throughout the Country.*

The average standard of midwifery practice at present is admittedly unsatisfactory. In a recent discussion on "The Teaching of Obstetrics and Gynæcology" at the Royal Society of Medicine, London, Dr. H. R. Andrews said that "the whole system of midwifery training had turned out a certain number of fully qualified medical practitioners who were nothing less than a danger to the State"; and he particularly illustrated "cases in which skilled help was not called in until brute force had done its worst." Although such extreme cases are exceptional, it appears to be generally agreed among experts in England that notwithstanding the overcrowded state of the medical student's curriculum at least three, and some urge six, months should be devoted by each student to maternity and gynæcological work, including work in pre-natal and post-natal clinics. When this is done, and when in every teaching hospital there is an adequate service, including pre-natal clinics, pre-maternity beds, beds for normal and complicated midwifery, beds for post-partum complications, post-natal clinics and infant consultations, the physicians of the future can be adeqately trained to meet the growing public demands for supervision and care in normal and abnormal pregnancy and in parturition, and for post-partum care of the mother and post-natal care of the infant.

Services like the above are needed not only in centres of medical teaching, but in every town, and even in cottage hospitals beds for the same purposes should be supplied. The problem will need to be faced in America whether adequate provision shall be made for medical attendance at every confinement, and practice by unqualified midwives forbidden; or whether, while prohibiting unqualified practice, trained midwives shall be allowed to practise midwifery, as in England, under strict supervision and control. Evidently there can be no prohibition of unqualified midwifery practice unless an alternative provision is available.

(6) *The Need for Further Research in Ante-natal Pathology.*

The existing system of notification or registration of stillbirths opens up a large field of investigation and practical help which has been greatly neglected in the past. Dr. Whitridge Williams found that the death of the fœtus after the seventh month of pregnancy was due to syphilis in 26·4 per cent.[2] of the total cases of stillbirth, and other authorities place this proportion at about 20 per cent. Evidently systematic inquiry followed by action in these cases would result in a great reduction of syphilis, as well as in an increase of live births.

Through the same channel important gaps in our knowledge of the causes of stillbirths and of earlier abortions might be filled. I am aware that a number of important observations in these directions are being made, but there is need for more extensive work in investigation; and there is no field in which such investigation holds out a more promising prospect of success in the saving of life.

Our knowledge on many points in ante-natal pathology is still very defective, notwithstanding the pioneer work by Ballantyne and Routh in England and by many workers in this country. There remain many blanks in our knowledge of maternal syphilis, for instance, as to the degree of importance attaching to a negative Wassermann test in mother or new-born infant; and we have but little knowledge of the toxins of eclampsia apart from renal disease. Our knowledge of the causes of infantile death during parturition, apart from mechanical causes, and of the causes of death in the first week after live birth is still rudimentary. And this, notwithstanding the fact that pathological material is abundant and waiting for investigation. The difficulties of such investigation are great, but it is certain that in the coming years we shall have much light thrown on what is now obscure.

Meanwhile, it would be a calamity if the need for further investigation were to divert attention from the large scope for immediate reduction of mortality, both of mothers and infants, or to delay action; and in promoting this work, we have found in England that there is needed the active coöperation of every private medical practitioner, every midwife, voluntary hospitals, whether general or special, social workers, and public health authorities.

[2] Omitting cases among the coloured population, the percentage of syphilis was considerably lower.

PROPOSED AMALGAMATION OF THE BRISTOL HOSPITALS.—The Bristol Royal Infirmary, the largest of the hospitals concerned, has decided by an almost unanimous vote at a largely attended governors' meeting to accept the proposed policy of hospital amalgamation. At this meeting the President, Mr. H. H. Wills, and the chairman of committee, Alderman F. Sheppard, recommended the adoption of this course, and explained the steps by which the movement towards amalgamation had progressed since its initiation in 1919. The only modification in the constitution of the "Joint Hospitals Council" proposed by the governors of the Royal Infirmary was an increase in the representation of labour interests. The other hospitals are still considering their attitude towards the proposal, and it is hoped that enough support will be forthcoming to give the scheme an early start.

SCURVY:

WITH SPECIAL REFERENCE TO PROPHYLAXIS IN THE ROYAL NAVY.[1]

BY P. W. BASSETT-SMITH, C.B., C.M.G., F.R.C.P.,
SURGEON-CAPTAIN, R.N.

THE subject of scurvy is of particular interest to all who have to maintain the health and well-being of our sailors.

Past History.

In the days of the old sailing ships, with voyages of extended duration, the danger of scurvy was much greater than it is now; little was known of the ætiology of the disease and catering difficulties were much more marked. Dr. Lind and Sir Gilbert Blane, the pioneers of naval hygiene, were both very active in studying and in endeavouring to eradicate this scourge of the navy. Fresh fruit and vegetables, as prophylactic and curative agents for scurvy, had been known to the Dutch as far back as 1564, and these had been successfully employed in the fleet by Sir Robert Hawkins in 1600, but the use of orange and lemon juice had been more or less forgotten until Dr. Lind insisted on their value. He, however, recommended *preserved* juice for use on long voyages. The fresh fruit juice was concentrated by heat to a thick syrup; as this was done in glazed earthenware vessels soluble lead salts were formed, and Lind drew attention to this danger, which he referred to as "death in the pot." Trotter strongly opposed the use of this form of preserved juice, as it was said to undergo fermentation and become mouldy. Unfortunately its issue to the crews in Cook's famous voyage of 1773–1774 did not prevent scurvy breaking out.

It was Gilbert Blane's teaching and powerful influence which brought Lind's recommendation into official use. Sir Gilbert Blane in 1757 pointed out the importance of cleanliness, sufficient ventilation, and absence of damp in ships, and the need of a supply of lemon juice for the prevention of scurvy. It was, however, not until 1796, when he was one of the Commissioners of the Navy Board, that the use of lemon juice was ordered as an essential part of the naval dietary, and this quickly resulted in the practical disappearance of scurvy from the Service afloat. In 1782 two-thirds of an ounce of lemon juice per man per diem protected the whole ship's company of H.M.S. *Suffolk* during a voyage of 23 weeks without touching port. In a discussion on the probable causes of the disease, which he attributed to the lack of a "certain element which is necessary for growth and repair," Blane foreshadowed the present deficiency theory.

From that time to the present lime juice has been a standing ration, but its efficacy has disappeared.

The reason for this has been ably shown by Mrs. Alice Henderson Smith. As originally prepared the lime juice was made from sweet limes, *Citrus medica*, with lemons, imported chiefly from Spain. In 1793 war stopped these supplies, but in 1802 delivery was resumed, and scurvy, which had obtained a temporary hold, was again almost eliminated. About 1860, by the development of the cultivation of limes in the West Indies, a large quantity was made available, and the contracts entered for the navy caused these, the sour lime, *Citrus medica var acida*, to supersede the sweet limes and lemons formerly in use, and for a time the new lime juice was believed to be better than the old. In Ross's polar expedition the original lemon juice had been issued, but Sir George Nares, in 1875, was provided with the new West Indian lime juice. The general conditions of the two expeditions were very similar, but while the former escaped scurvy, Sir George Nares's men suffered severely from it, in spite of the regular issue of the lime juice, thus demonstrating the failure of the new preparation as a prophylactic. The sister ship in the latter expedition, the *Investigator*, was supplied with lemon juice, and for 27 months after leaving home she had few cases, though the crew suffered great hardships. In three and a half years she had only three deaths from scurvy, whereas Nares had the same number in one year.

The evidence is clear that lemon juice is far more effective than lime juice in preventing scurvy, and this has been fully confirmed by the large number of laboratory experiments carried out at the Lister Institute, London, and elsewhere, which have determined exactly their relative values for the purpose. Lemon juice and sweet limes have therefore been found to repair a deficiency which, if not rectified, induces scurvy, and the consumption of these juices is curative for the same disease. This is in accordance with modern teaching, which attributes the condition to a deficiency of a certain accessory factor known as scurvy vitamine. This factor is found in living vegetable (and secondarily in animal) tissue; in largest amount in fresh fruit, green vegetables, and growing pulses, and, to a less extent, in roots and tubers. Young vegetables contain more than old. It is present in small amount in fresh meat and milk. It has not been found in yeast, fats, dry cereals, and pulses, but exists to a certain extent in canned tomatoes. The antiscurvy food factor is sensitive to high temperatures, and if exposed to them it rapidly loses its efficacy; the presence of alkali is also detrimental.

Recent History.

Much has been written of the prevalence of scurvy during and since the war among the combatant forces and in the civil populations chiefly affected in war areas. Of the former, those in Mesopotamia suffered very severely, and Colonel W. H. Willcox, in his excellent communications, has described the reasons for the outbreak very fully.

The high incidence amongst the native troops at Kut, in comparison with that of the Europeans, is explained on dietary grounds; the latter had fresh meat to supplement their meagre diet, and the former were more susceptible owing to diminished vitality from preventable causes. He states that the knowledge we then possessed for the prevention of scurvy and beri-beri was not fully appreciated and acted upon by those in authority—i.e., that the food must have the necessary accessory factors, as well as sufficient calories as estimated by the protein, carbohydrates, and fat. The fact that over 11,000 cases of scurvy occurred in the last six months of 1916 indicates the importance of the subject. The following table shows the amount of scurvy in the Indian troops and beri-beri in the British.

Year.	Scurvy (Indian).	Beri-beri (British).
1916	11,445	104
1917	2,197	84
1918	825	51

The crews of British men-of-war were also affected to a small extent, and as has been shown repeatedly by the endemic presence in the Persian Gulf of ship beri-beri, this is a question of some importance, more particularly in times of extra strain, as was the case in these years. Much has been done to prevent these outbreaks by increasing and supplementing the diet, but climatic conditions in that area always make the provision of efficient food-supplies difficult.

In other war areas, Serbia and the remainder of the Balkans, famine conditions have necessarily given rise to an enormous number of scurvy cases. In Northern Russia it is very prevalent each winter, particularly in the prisons. Even on the Western Front the cases of incipient scurvy were very numerous, due in great part to the use of tinned provisions. By Japanese investigators the conditions produced in guinea-pigs on a deficiency diet is considered to be similar to that found in ship beri-beri, a disease which undoubtedly links up human scurvy and beri.

The post-war hardships in the civil populations have also induced scurvy, and the gallant fight being made against this and other diseases by individuals of all classes and peoples throws a glimmer of sunshine on what is otherwise a dark and tempestuous horizon. The work in Vienna of Dr. Harriette Chick and others to ameliorate the sufferings of the infantile population is particularly noteworthy. From a scientific point of view such an overwhelming mass of cases has increased our knowledge of the clinical features of scurvy enormously, and many new facts have been ascertained.

Relationship of Scurvy to other Deficiency Diseases.

The ætiology, thanks to the work of British, American, French, and other observers, has now been placed on a sure foundation, following the elaborate investigations that have for years been carried out in establishing the ætiology of beri-beri as a deficiency disease. The close relationship of beri-beri, ship beri-beri, scurvy, and rickets was well shown in a diagram (Fig. 1) by Darling in 1915, which I here reproduce; it shows the gradation from polyneuritis avium at one end to that of rickets at the other. (Table I.)

[1] A paper read before the War Section of the Royal Society of Medicine on May 10th, 1920.

He recognised several varieties of beri-beri—infantile beri-beri, asylum beri-beri, wet-and-dry beri-beri (which Vedder and Clark look upon as distinct), the Brazilian type, endemic dropsy, and endemic peripheral neuritis. Darling, with Surgeon-General Gorgas, spent much time in investigating the endemic scurvy found among the native miners on the Rand in South Africa. The cardiac condition resembled beri-beri in the concentric hypertrophy of the right heart and degeneration of the vagus nerves. The disease appeared to depend upon the following factors: over-milled corn as a chief article of diet; over-cooked corn; over-boiled meat; insufficient vegetables.

FIG. 1.

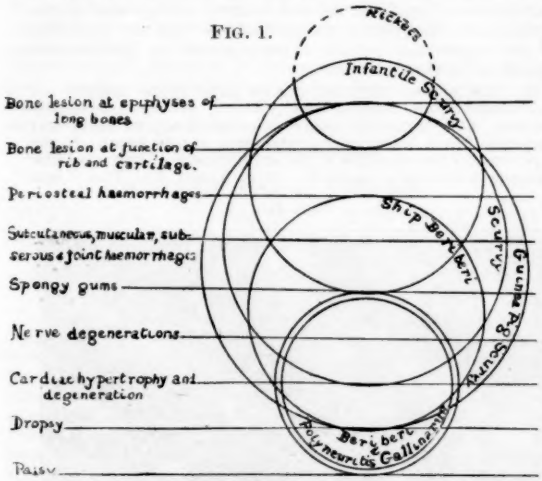


Chart showing gradation from polyneuritis avium to rickets. (Darling.)

TABLE I.—*Showing Affinities and Pathologic Features of Scurvy, Beri-beri, &c.* †

—	Rickets.	Infantile scurvy.	Scurvy.	Guinea-pig scurvy.	Ship beri-beri.	Beri-beri.	Polyneuritis gallinarum.
Bone lesions at epiphyses of long bones	+	+	*	+			
Bone lesion at junction of ribs and cartilage	+	+	+	+			
Subperiosteal hæmorrhages		+	+	+			
Joint, subserous, subcutaneous and muscle hæmorrhages		+	+	+	+		
Spongy gums		+	+	+	+		
Nerve degeneration			+	+	+	+	+
Cardiac hypertrophy and degeneration			+	+	+	+	+
Dropsy				+	+	+	+
Palsy						+	+

† Trop. Dis. Bull., vol. v., 1915. * Depending on age of patient.

Clinically, cases were seen of every degree of severity, from those who had spongy gums only to those with excessive hæmorrhages. Some cases showed marked rickety symptoms, with extreme destruction of the chondro-costal junctions, others were similar to beri-beri with cardiac degeneration and changes in the vagus nerves. Personal and racial factors had an unknown influence on the resultant symptoms. A deficiency diet in a tropical African negro miner caused severe scurvy symptoms, and in a Cape Colony African labourer mild scurvy, a diet that in some African negroes caused scurvy, in others produced neuritis. In all cases the knee-jerks were exaggerated. (Those who have experience in ship beri-beri have often been puzzled by the persistence of knee-jerks in these cases also.) The scurvy on the Rand, besides showing cardiac changes, differs from the ordinary forms found in time of poverty and famine in that it does not so readily yield to treatment.

Darling sums up in the following words: "The striking excentric hypertrophy and dilatation of the right heart, with extensive fatty degeneration of the muscle, and the severe degeneration of the vagus nerves, in cases of scurvy seen on the Rand, furnish new and additional facts which show the intimate relationship between scurvy and beri-beri as to etiology. The affinities between these two diseases and certain other cachexias lend emphasis to the opinion that they are all the result of the continued use of a one-sided and deficient diet."

An Efficient, Portable, and Palatable Antiscorbutic.

Recognising the antiscorbutic that cannot be supplied by the preserved lime juice from West Indian sources as at present made, it has been my object to provide an efficient, portable, and palatable substitute for the use of ships as occasion requires, and for such expeditions as may be undertaken in polar exploration, &c. For the last six months I have been experimenting at the R.N. College, Greenwich, with guinea-pigs, which are extremely susceptible to scurvy, to obtain such an anti-scorbutic preparation to replace or add to the lime juice ration. The value of these experiments with guinea-pigs in relation to human scurvy has received abundant proof by experiments on monkeys carried out by Barnes and Hume, Chick, Hume and Skelton, and others.

Much of the work done at Greenwich has not been original, but was nevertheless necessary before passing on to the methods of prevention and cure. The use of dried orange juice has been largely employed by Givens and McClugage, who found that in the fresh state it was equal to that of lemons, and that it retained its antiscurvy properties for a considerable time; but in their preparation the employment of a certain amount of heat diminishes the efficiency of the product. In the investigation carried out at Greenwich various methods of preparing the juice were tried, evaporation at 60° C., de-acidification, impregnation of filter paper, rapid drying, &c.

Method of Preparation.

The final laboratory method evolved, which has been continuously in use, is as follows:—

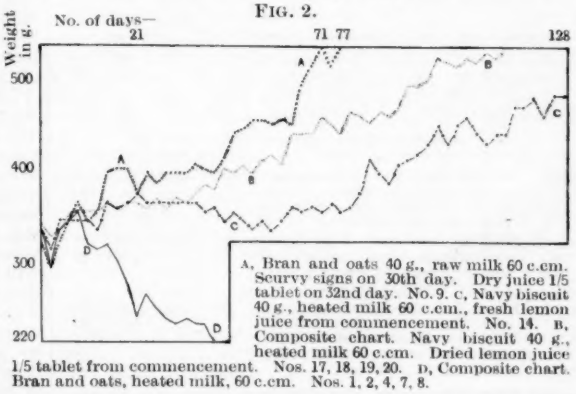
The juice of fresh lemons is roughly filtered through muslin and then through filter paper under reduced pressure by means of a water pump. The filtered juice is evaporated, in vacuo over sulphuric acid at ordinary temperature (13·5°–15·5° C.). The residue of non-crystallisable syrup is worked up into as stiff a paste as possible with a mixture of anhydrous lactose 97 per cent., gum tragacanth 3 per cent. The paste is cut up into sections, each containing the juice of half a lemon. These are rolled, faced with the mixture, and pressed to assume the lozenge form. These tablets have been stored at 15°, 30°, and 37° C. for months, and have been employed in the experiments. The average yield of juice from one lemon is about 48 c.cm., and each tablet contains the equivalent of 24 c.cm. of unfiltered juice. The whole process takes about five days; no heat whatever is used.

Experimental Results.

Two series of experiments were carried out. (Fig. 2.)

1. Using a basal diet of bran and oats, 60 c.cm. of milk heated in steam steriliser for 1¼ hours, and water ad lib.

FIG. 2.



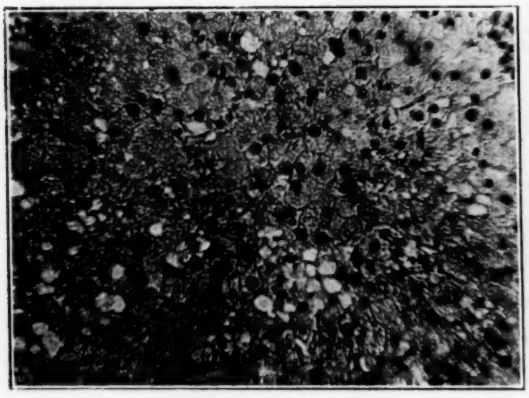
A, Bran and oats 40 g., raw milk 60 c.cm. Scurvy signs on 30th day. Dry juice 1/5 tablet on 32nd day. No. 9. C, Navy biscuit 40 g., heated milk 60 c.cm., fresh lemon juice from commencement. No. 14. B, Composite chart. Navy biscuit 40 g., heated milk 60 c.cm. Dried lemon juice 1/5 tablet from commencement. Nos. 17, 18, 19, 20. D, Composite chart. Bran and oats, heated milk, 60 c.cm. Nos. 1, 2, 4, 7, 8.

In this there was abundant water-soluble anti-beri-beri, and fat-soluble growth factor. The control animals died between the thirtieth and fortieth day with all the usual signs of guinea-pig scurvy and great loss of weight. The addition of navy lime juice did not give any protection.

2. In the second series navy biscuit was used as the basal diet to which was added steamed milk 60 c.cm. and lime water; on one day per week the biscuit was substituted by oats to supply the anti-beri-beri vitamine. Growth was well maintained for over a fortnight, then the weight rapidly decreased, scurvy signs were manifested, and death followed. Control animals with 20 g. of fresh cabbage or 10 c.cm. fresh de-acidified lime juice grew normally. Animals were given 1/5 tablet (= 4·8 c.cm. fresh lemon juice), in solid form, by hand feeding. There was generally a loss of weight at first, but when they became accustomed to the diet the animals grew and remained healthy for over three months.

A further series was carried out to find the minimum amount of tablet which would act as a preventive dose. The daily amount was reduced to 1/10th (= 2·4 c.cm. fresh lemon juice). In two animals this was sufficient,

FIG 3.



Suprarenal gland in scurvy showing fatty degeneration. × 120.

but in two others signs of paralysis appeared, and they had to be placed on normal diet again; this was followed by recovery.

Keeping properties.—Animals were also given tablets which had been stored for three months and more, and no loss of protective power was noticed. Tablets kept at 37° C. became dark in colour and softer, due to caramelisation of the lactose, and this appears to effect to a slight extent the vitamine properties. In no instance were the tablets found to have become mouldy, whether kept at room temperature or blood heat.

TABLE II.—*Comparative Results.*

(A) Original weight. (B) Weight at death. (C) Weight (mgm.). (D) Mgm. per 100 g. of body-weight at death.

—	Scurvy animals.	Animal.		Suprarenals.	
		(A)	(B)	(C)	(D)
No. 1.	Died on 48th day. Hæmorrhages and joint signs. Suprarenals—local and diffused hæmorrhages.	340	235	270 225	115 96
No. 2.	Died on 44th day. Hæmorrhages and joint signs. Suprarenals: Hæmorrhages and degeneration of cells in cortex.	360	235	237 200	101 85
No. 3.	Died on 53rd day. Mucous and muscular hæmorrhages. Suprarenals, diffuse hæmorrhages, and slight fatty changes.	340	270	255 225	94 83
No. 4.	Died on 44th day. Joint signs. Suprarenals, intense hæmorrhagic condition whole gland. Fatty changes in cortex.	320	240	185 175	77 73
No. 5.	Killed 27th day. Hæmorrhages and joint signs. Ophthalmia. Suprarenals—extreme fatty degeneration of cortical cells, slight hæmorrhages.	370	260	220 182	85 70

Five Scurvy Animals—Suprarenal Bodies.

Average weight per 100 g. body-weight at time of death ... 87·9 mgm.

Six Normal Animals—Suprarenal Bodies.

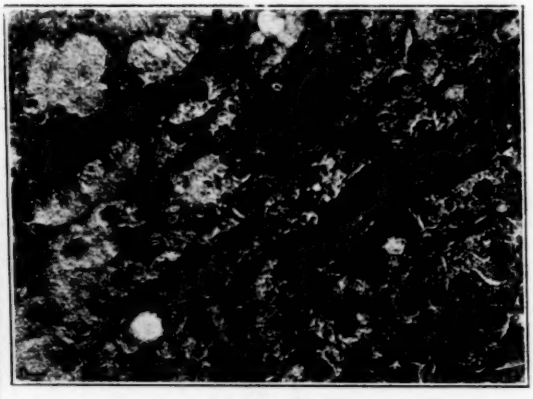
Average weight per 100 g. body-weight at time of death ... 25·8 mgm.

Therapeutic action.—If administered to an animal following scurvy signs, which were not too marked, a cure was effected, but if diarrhœa had set in, or a great loss of weight had occurred, the animals died.

As they have been so fully reported elsewhere, it is unnecessary to describe the scurvy symptoms in the animals or the post-mortem findings, but the condition of the suprarenal bodies, as emphasised by McCarrison, deserves further mention.

He has shown that in guinea-pigs these organs are enlarged, hæmorrhagic, and have a reduced adrenalin content, and with this there is a tendency to secondary bacterial blood infections (found once in my cases). In my experiments the changes in the suprarenals of the scorbutic animals were very marked. (Fig. 3 and 4.) There was

FIG. 4.



Another section showing circumscribed hæmorrhages in the cortical area. × 350.

marked congestion of the whole gland, with diffused or circumscribed hæmorrhages and fatty degeneration of the cells chiefly affecting the cortical areas. The weight of the glands was roughly three times that found in healthy guinea-pigs. The reduction of the normal secretion is, according to McCarrison, an early factor in the scurvy syndrome, and influences very markedly the metabolic changes in the animal, and he concluded that the evidence, so far available, points to the dependence of the functional perfection of the adrenal glands upon the adequate supply, in the food, of the accessory food factors of the various classes.

Conclusions.

Many observations have shown that the onset of scurvy is very gradual. Dr. J. R. Comrie, in an account of scurvy in Russian prisons, stated that it might be 4½ months, but generally it is as long as 6 months, before symptoms are manifested. In the pre-scurvy stage, owing to the deprivation of antiscurvy factors, the metabolism of food is incomplete and a positive agent is added, which acts like a toxin, causing changes in the adrenals and their secretions, favouring the hæmorrhagic conditions which are such marked features of the declared disease.

The use of this concentrated preparation has shown that it has effective antiscurvy properties for animals. We may therefore, with confidence, apply its use to man under conditions of service which preclude the regular provision of fresh fruit and other known preventive substances. It could also be employed in the mercantile marine. Though it is not yet possible to say how long the activity of the retained antiscurvy vitamine will remain effective, it is probable that this will be of extended duration if the preparation is kept dry and cool. Dr. Chick, in Vienna, has found that 5 c.cm. of lemon juice is a prophylactic dose for infants, therefore 24 c.cm. would probably be ample for an adult (half a lemon). The tablets dissolve fairly readily if added to water containing a small quantity of bicarbonate of soda, and it is suggested that these dissolved tablets, containing antiscurvy accessory factor, should be added to the ordinary non-active pleasant-tasting lime juice at present issued.

For general service, when large quantities are required, the non-heated concentrated syrup, as

obtained before being mixed with lactose, might be kept in bottles and the equivalent of 24 c.cm. of fresh lemon juice be given per man, after solution in water to which sugar has been added at the time of issue. It is probable that this syrup would keep without mould formation and this aspect is at present under consideration.

In this investigation I am greatly indebted to Mr. R. C. Frederick for his able assistance in preparing the tablets used, and to Sick-berth Steward A. Coules for his careful attention in feeding the animals.

A SHORT ACCOUNT OF AN OUTBREAK OF SMALL-POX IN OCCUPIED GERMANY.

BY G. G. JOHNSTONE, M.A., M.D., D.P.H. CAMB.,
CAPTAIN, R.A.M.C. (T.F.).

DURING the month of December, 1918, it will be recalled that the British Army of Occupation was moving through the Ardennes and the bleak and mountainous Eifel district on the way to take up its position along the Rhine. The Germans had, on the whole, been very successful in their rapid retreat, and beyond broken-down motor lorries and cars, and the frequent spectacle of a zone or border of discarded shrapnel helmets along each side of the roads at a distance of about 15 yards, there were few signs to show that the war had so recently ended. Inside some of the hospitals, however, there certainly were signs of blockage and overloading, and in the rush backwards in the case of the retreating army, and forwards in the case of the liberated prisoners of war, the German medical work must have been sorely taxed.

It happened, then, that in the Hospital of St. Vith—a little market town in the province (late German and now Belgian) of Malmedy—there was a case of small-pox in a Polish soldier, who had recently been demobilised from the German army. In the rush and pressure of the constant movement the diagnosis was not made until the infection had spread to other patients in the hospital. The Polish soldier himself was sent on an ambulance train across the Rhine undiagnosed. On the arrival of the first British troops at St. Vith the senior civilian local doctor reported that there was small-pox in the town. There were three cases in the local hospital and one in a house in the centre of the town. This latter case was being removed at once to the hospital. A car was immediately sent to Cologne—about 70 miles away across the mountains—to procure a supply of fresh lymph for use amongst the civilian population. The town was put out of bounds as a billeting area, and the column of troops—a brigade of cavalry and three whole infantry divisions—marched right through the town.

On investigation at the hospital it was found that the Polish soldier had been nursed in the same ward as a man who was suffering from pulmonary tuberculosis. The latter was frequently visited by a cousin—a midwife in practice in the town. The midwife was taken ill with small-pox in her own home on 30/11/18, a day or two after she had attended two confinements. On 15/12/18 her husband was removed to the hospital also suffering from small-pox. On each occasion after the removal of a case to the hospital the house was disinfected by the local authorities. The aged mother of the midwife (81 years) was removed to hospital at the same time as her daughter for the purpose of isolation. On 4/1/19 she was allowed to return to her home, which had been disinfected three weeks before, and on 18/1/19 she also contracted small-pox and was removed to the hospital, where she died. These were the only three cases occurring in the town of St. Vith, and all of them came from the same house.

Hospital Conditions.

A brief sketch of the local hospital will help to explain the cause of the incidence of other cases in this epidemic. On the outskirts of the town there was a building, or rather a composite group of buildings all within the same grounds. In these buildings were housed (1) the local hospital for general diseases; (2) a chapel; (3) an almshouse for aged people; (4) a small convent, the inmates of which were the nurses in the hospital; (5) a large orphanage and school of domestic economy. Here, then, we have a very suitable medium for the growth of a small-pox epidemic, and it seems almost surprising that the number of cases was not greater than actually did occur.

It has been already noted that a supply of lymph had been sent for from Cologne, and on 6/12/18 the inhabitants of the hospital and other buildings, and, as far as possible, of the town, were vaccinated by an organisation of the two local doctors and the Kreisarzt, or medical officer of health for the Kreis of Malmedy. In spite of vaccination, three nurses and one attendant were taken ill on 21/12/18. Two of the nurses, including the matron, died. Altogether five of the nursing staff of a total number of about 20 took the disease, and, in spite of vaccination both recent and remote, the type of the illness was grave. There was no proper isolation block in the hospital, and there was no small-pox hospital, or even proper infectious disease hospital for the district, so that the cases were isolated in a part of the building which was occupied by the aged pensioners, and below them by the nursing sisters.

It was not altogether surprising, then, that the incidence of cases amongst these aged people was very high. Eight (about two-thirds) of them were taken ill, and fortunately there was only one death. Their ages were respectively 40, 63, 75, 70, 72, 81, 52, and 70. At the time of the vaccination the authorities were rather of opinion that it was not essential to insist upon the vaccination of these aged folk, and thus five out of the eight had not been vaccinated since their childhood. Two of them were ill with bronchitis or influenza at the time, and it happened that the only fatal case was that of a woman who refused to be vaccinated in spite of advice.

In the same ward as that in which lay the original Polish soldier it has been mentioned that there was another patient—also a demobilised soldier of the German army. He took the disease, and before the diagnosis had been made he was frequently visited by: (1) his cousin, the midwife, already referred to; and (2) his father (aged 60), who lived in a village about 4½ miles away across the hills. This man was taken ill on 17/12/18 in his house, and as soon as the case had been diagnosed the whole of the population was vaccinated and the village was put out of bounds to British troops. The patient was removed to the St. Vith Hospital on 26/12/18. On 30/12/18 the mother and three children were all taken ill with the disease in a mild form in the hospital where they had been removed for isolation. They were vaccinated on 22/12/18. Fortunately, no other cases occurred in this village.

Vaccination Orders.

It was considered wise, however, by the British authorities that vaccination should be undertaken more extensively in the neighbouring villages. Many points had to be taken into consideration. St. Vith was the market town for that part of the country. Farmers, and others, were constantly coming in and going back to their isolated villages amongst the hills. No check had been made in the early days of visitors to the hospital. Owing to scarcity of civilian doctors and the long distances to be travelled, the poorer people did not seek medical advice unless an illness was of a severe or painful nature. Cases, then, of slight small-pox might lie ill in these villages for days and even weeks without isolation or any other precautions. Although the great majority of these villages were not in use at the moment as billeting areas for British troops, it was not known when the occasion for such use might suddenly arise. St. Vith was also a railway centre of some temporary importance, for it was here that many of the railway wagons and engines were collected from all parts of Germany and repaired previous to being sent over the border to France and Belgium under the terms of the armistice.

An order was then issued by the British military authorities that there should be a compulsory vaccination.

by the local German doctors of the inhabitants of the villages within seven miles of St. Vith. Lymph sufficient for 10,000 cases was supplied from Cologne to the Kreisarzt for the purpose of this vaccination, which took place during the middle of January.

Three Interesting Cases.

Three more cases remain to be noted, and they are all interesting in that they bring to light the weakness or inefficiency of the strict administration of the hospital as a small-pox isolation hospital.

The first case occurred in a remote village six miles from St. Vith. The husband of the patient had been in hospital and was discharged on 24/12/18. He took out with him some undisinfected clothing in a parcel. The parcel was not opened until 5/1/19. The woman was taken ill just about a fortnight later. She, with the rest of her family, had been vaccinated on 15/1/19, so that she was taken ill within five days of her vaccination. Owing to poverty and inaccessibility of the village a doctor was not called in until 10/2/19—that is, during the fourth week of the disease.

After the occurrence of this case orders were issued to the hospital and German medical officers that a complete list should be furnished of all patients who had left the hospital since the date of the first case, and that a weekly medical inspection of them should take place.

The next case brings out the above points even more clearly, for the patient—a man of 36—had been in the hospital suffering from morbus cordis, and had been nursed in an infected ward. He was discharged on 5/1/19 and he was taken ill about 10/1/19. No doctor was called in owing to poverty, and it was not until five weeks later—on 18/2/19—that the burgomaster of the village telephoned to another hospital and asked if the case could be admitted. The local doctor on his examination of the case noticed the marks of small-pox, and then, in consultation with a German doctor who had arrived from the interior of Germany to take charge of the epidemic, the history was elicited and the diagnosis made. The sister superior of the hospital had suspected that the patient was suffering from tuberculosis, and had fortunately put him in an isolation ward.

The village in which this case had occurred was again on the extreme northern periphery of the vaccination zone, so that a further zone was marked out, and the inhabitants of 11 more villages were all vaccinated. Fortunately this was the last case in this area.

The final case is just deserving of note. It occurred in Cologne itself. The patient had come from Cologne to St. Vith in search of work. He was given work in the hospital grounds and did odd jobs about the premises. After ten days or so he got tired of this and went back to Cologne without the knowledge of anybody. He was taken ill a few days later, but fortunately there were no contact cases.

When the casual nature of the administration of the hospital began to be more fully recognised a further order was issued by the British military authorities. This order forbade any civilian to leave the area of St. Vith without a certificate signed by a local German doctor, stating that the subject: (1) had been recently vaccinated; (2) was free from disease; (3) had not been in contact with a case of small-pox.

The above, then, is a short sketch of the epidemic. In all there were 30 cases, 4 of which died, and 3 of these 4 belonged to the nursing staff of the hospital.

Administrative Difficulties.

A few words may be added on the subject of administration, especially as the circumstances are rather exceptional. It should first be pointed out that in Prussia since 1874 the law has insisted on the vaccination of all children on two occasions: (1) during the first year of life, and (2) at puberty. Thus practically all the patients had been vaccinated at least twice, and some of them three and even four times. There was no real isolation hospital of any kind for this part of Germany. The Kreisarzt had urged the provision of one, but it was not until the British military authorities strengthened his hand by giving a direct order to the civilian authorities that any means for the isolation of small-pox cases and suspects were adequately provided. This took the form of temporary isolation huts in a field.

During the earlier days of the British occupation the civilian medical authorities undoubtedly were handicapped in their ability to take rapid and effective measures to cope with an epidemic. They were not allowed to use the telephone or telegraph. They were not allowed to use motor-cars. Their train service had come to a standstill. There was no petrol, and the great majority of cars were standing idle because there were no tyres. Circulation of civilians was greatly restricted. They were not allowed to use bicycles or to go out after dark. It was only a matter of a few days, however, before these orders were to a large extent rescinded in so far as they affected medical matters. Furthermore, the British authorities helped the local civilian authorities by the supply of disinfectants, petrol, and oil, and to a certain extent with transport to enable the epidemic to be more efficiently handled.

The population of the Kreis or Circle of Malmedy was between 30 and 40 thousand inhabitants, the majority of whom lived in small and straggling villages and hamlets scattered amongst the bleak hills of the Eifel district. For a part of the time the roads were covered with six inches of snow. This had the dual effect of isolating one village from another, and at the same time of preventing the efficient medical visitation and supervision of cases who were taken ill in the villages.

Here it may be mentioned that in these outlying villages there were cases of typhoid fever constantly being brought to medical notice far on in the course of the malady. They were just nursed at home by relatives, and their removal to hospital for better nursing and isolation was greatly resented in many cases. There was, apparently, no provision of any ambulance, motor or otherwise, for the removal of infectious or acute cases from their homes to the hospital, and, incidentally, it may be observed that one of the cases of small-pox—a man of 60 suffering from a grave confluent type of the disease—had to be removed in an open farm wagon a distance of 4½ miles across the hills by bad roads covered with six inches of snow He fortunately recovered.

In conclusion, it is a pleasure to record the spirit of harmony which existed between the British military and the German civilian medical authorities with regard to steps which were taken to cope with the epidemic, and it is satisfactory to report that three British divisions and a cavalry brigade marched across this area during December without contracting a single case of the disease.

A REVIEW OF RECENT WORK ON THE MORBID ANATOMY OF CHRONIC ARTHRITIS.[1]

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THE pendulum is swinging back to the pre-Charcot days, when all forms of chronic arthritis were grouped under the one heading, and the differentiations brought forward by Charcot, Goldthwaite, and others must be considered as unsound from a pathological, ætiological, and even a clinical aspect.

As far back as 1906 this tendency can be seen in a paper published by Nathan, of New York; it is much emphasised by Daniel in his book on "Arthritis," published in 1912, and in a paper which I read before the Harrogate Medical Society in 1911 I urged the view that degenerative or osteo-arthritic changes followed in cases of long-standing rheumatoid arthritis. It is, however, the recent work of Nathan, published in the *American Journal of Medical Research* for 1917, which appears to me to remove all doubt on this perplexing subject.

Clinically there are two types of chronic arthritis, those which lead to ankylosis, both fibrous and osseous, and those which lead to ankylosis by deformity or locking. Pathologically there are also two types of chronic arthritis, the inflammations and the degenerations; but between these clinical and pathological types there are all gradations, and frequently both types are combined.

[1] A paper read at a discussion on Chronic Arthritis before the Harrogate Medical Society.

All these types may be produced by the same ætiological factor, the variations largely depending on the duration and intensity of the damaging agent; or as Nathan puts it:—

"The various anatomical and particularly the histological abnormalities, although characteristic in themselves, cannot be brought into correspondence with specific ætiological factors, clinical entities, or even definite pathological entities. As there may be purely atrophic and purely proliferative conditions or combinations of the two in the joints of the same individual, and though there may be only synovial changes in some and only osseous changes in others, combinations of such changes are often to be found side by side in the different joints of the same individual."

Even in the cases of known ætiology the search for a specific reaction in the joint tissues in correspondence with specific morbid factors has been in vain.

Take, for example, tuberculosis. We may have a distinctly synovial type with the formation of granulation pannus with secondary invasion of cartilage and bone; or we may have a primary osseous focus which invades the cartilage and joint cavity from the epiphysis. The epiphyseal disease may present purely degenerative or purely inflammatory changes, or a combination of the two may be found on examination. The changes may be accompanied by a proliferation in the joint interior resulting in fibrous or osseous ankylosis, or a focus may remain in the epiphysis causing atrophy of the neighbouring bone structures, which subsequently leads to deformation without involving the articular cartilage.

Or, again, the statement by Daniel that "it may, on the other hand, well be that rheumatoid arthritis is the analogue of primary synovial tuberculosis, while osteo-arthritis conforms more to the osseous infection, which distinction does not make either a special entity but simply a clinical variety."

Nathan has now been able to show by experiments on dogs that analogous phenomena occur in gonococcal, pneumococcal, streptococcal, and other infections. The differences are simply in the extent and in the rapidity of the process, and not in the fundamental changes in the joint tissues.

The Difficulties of Classification.

It is impossible to discuss the many different classifications which have been made, but I shall give you one as an example to show how impossible it is to do so with any degree of accuracy.

Goldthwaite divided the chronic joint conditions into atrophic, hypertrophic, and infectious, but this grouping, though convenient, is misleading and unscientific, as has been demonstrated by the admirable work of Nicholls and Richardson, who show that in the so-called atrophic type that the early predominating lesion is a proliferating process, while in the so-called hypertrophic or degenerative type the early lesion is an inflammatory one. It therefore becomes impossible to divide these joint diseases according to their pathological findings.

There are no joint diseases which are exclusively degenerative or exclusively proliferative, the one or other may predominate in a particular joint, and there are evidences of both these conditions in practically all joint diseases. All the phenomena of inflammation may be present, be followed by partial or complete resolution or by degenerative changes; again, when the inflammatory condition has long subsided, there may be simply degenerative changes with nothing to show that they were preceded by a more or less intense inflammatory condition. The variations are due to the variations in the location, the intensity, the duration, the termination of the process, and the stage at which the affected structures are examined.

To enable us to follow the various pathological manifestations intelligently it will be convenient to describe the morbid changes as they occur, first in the inflammatory and then in the degenerative stage, recollecting that they are differentiated for convenience, but that both processes take place to a certain degree in every joint affected with chronic arthritis.

The Microscopic Structure of a Normal Joint.

"In a normal joint a thin layer of cartilage covering the articulating surfaces of the bones is itself covered by a thin layer of specialised connective tissue, the perichondrium. This layer is somewhat thickened at the periphery of the joint, and becomes continuous with the connective tissue of the synovial membrane. Underneath the perichondrial layer the cartilage is hyaline and the cells are smaller and fewer in number than towards the epiphysis, where they occur in irregular groups, arranged at right angles to the joint surface, and are definitely encapsuled. Between these vertical layers of cells are parallel bands of somewhat fibrous hyaline cartilage. Beneath this layer comes a zone of provisional calcification (Nicholls and Richardson) which represents the line of transition from cartilage to bone, and may consist of a homogeneous, granular, or laminated matrix. The cells are either cartilage cells, sometimes surrounded by granular matrix, or true bone corpuscles surrounded by laminated lime-bearing matrix. Beneath this zone there is usually a continuous layer of bony tissue. The marrow spaces just beneath the articular cartilage usually are vascular and lined at intervals by flattened endosteal cells, greatly enlarged, resembling the osteoblasts; occasionally bone giant cells, osteoclasts, are seen lying in little cut-out bays in the trabeculæ, which show lamination from the deposit of layers of calcified bone."

The dense fibrous joint capsule is lined with the mesenchymal cells of the synovial membrane, which commonly extends along the adjacent tendon sheaths. At its junction with the periphery of the cartilage gradual transition in type from fibrous into cartilaginous tissue can be seen. Thus we see that at the periphery of a joint the capsule, synovial membrane, perichondrium, and zone of provisional calcification become practically merged.

When one remembers the embryonic origin of the joint structures the interpretation of many of the phenomena of joint diseases becomes much more easily understood. The cells in the capsule, cartilage, periosteum, and area of transition between capsule, cartilage, and periosteum will, under morbid conditions or influences, proliferate and produce bone or cartilage in regions where these tissues are normally found. Under some circumstances, apparently, the cells proliferate as embryonic cells, and finally produce bone or cartilage in situations where these tissues are normally absent.

The Inflammatory Stage.

The focus of invasion commences as a subperiosteal inflammation in the region near the capsular insertion. In a very short time this localised inflammation leads to localised periostitis. In the milder cases the condition subsides at this stage, and the clinical phenomena of capsular irritation, joint effusion, and peri- and para-articular œdema disappear, and there remains a localised periosteal thickening or node as the only permanent change. These are familiar to us all as Heberden's nodes. When the disease is not arrested and advances from the periosteum to the capsule the inflammation gradually invades the joint cavity. Hyperæmia is succeeded by the usual phenomena of inflammation, round-celled infiltration, granulation, and connective tissue formation, leading to marked thickening of the capsule. The most marked changes usually take place in the synovial membrane. The proliferation of the synovial membrane produces a layer of granulation tissue, which, sooner or later, may extend over the cartilage as a thin pannus-like layer.

Nathan has experimentally on dogs produced a similar pannus by immobilising joints in plaster-of-Paris for periods of six weeks or so.

If the source of irritation is removed the condition may stop there, but usually when the pannus comes in contact with the cartilage it produces a destruction and absorption of the cartilage by sending loops of blood-vessels into it, much in the same way as a catgut ligature is absorbed. A proliferation of the perichondrium may, moreover, lead to the formation of a layer of specialised connective tissue, which readily transforms itself into cartilage and sometimes into bone. When this process takes place in both articular cartilages the whole joint cavity may get filled up, adhesions take place between the two joint surfaces, and the cartilages get absorbed and destroyed. This proliferation is never regular, portions of cartilage are always left as small islands among the granulation tissue. Nathan considers the above phenomena to be mainly synovial and refers to it as the synovial type.

The osseous type.—In addition to the changes already described within the joint cavity similar changes may take place (either independently or in conjunction with those already described) within the marrow of the epiphysis of the bone itself. Lindsay Milne, writing in the *Journal of Pathology* for October, 1911, considers that this is the most common type, and that it always precedes the synovial.

Just below the zone of provisional calcification a proliferation of the connective tissue of the marrow spaces of the epiphysis takes place; this is accompanied by the formation of blood-vessels, which may extend upwards through the zone of provisional calcification, causing a

destruction of the joint cartilage, and meet the granulation tissue of the pannus, if present. Radiograms will show that the bone is much rarefied, but rarefaction is also found in injuries where the joints have been kept at rest for some considerable period, and it has also been demonstrated in the bones of dogs by fixing the joints in plaster-of-Paris for some time. Further, there is very frequently an accompanying proliferation of the endosteum of the marrow spaces which may result in the formation of new bone or cartilage. If this process goes on in both bones of the articulation the whole joint cavity gets filled up, adhesions take place between the two joint surfaces, the cartilages become absorbed, and new bone is formed from the endosteum of the marrow spaces—with the result that eventually real osseous ankylosis occurs between the two bones of the articulation.

Nathan found that, besides the marrow changes, in the early stages of the epiphyseal involvement there is an intra- or para-articular joint exudation, which on investigation was always found to be sterile, whereas the streptococci could nearly always be demonstrated in the neighbouring epiphysis. So that in the early stages of joint infection the joint exudate may be considered symptomatic.

The end-results differ in every case and very frequently in different joints in the same individual. For instance, if the proliferation has been confined to the epiphysis, it may remain as a focus in the epiphysis and not penetrate the line of provisional calcification; there it produces softening and enlargement of the bone, which becomes much rarefied, and if the joint is used much, or forcibly moved, distortion is caused and subsequent atrophy of the neighbouring bone is seen, similar to that in tubercular epiphysitis.

All these joints may go on to degeneration, no matter what state the joint is in. The joint has received an injury which has caused more or less destruction of the articular surfaces or the epiphysis, and therefore, as in tubercle of old standing, trauma old and new, and faulty statics, degeneration may ensue.

The Stage of Degeneration.

If one wishes to see pure cases of degeneration he must examine the joints of some individual, preferably well up in years, who has been bedridden for a number of years. The primary change is a degeneration by fibrillation of the hyaline cartilage of the articulation, commencing with the disappearance of the spindle-celled perichondrium. As a result of the fibrillation the cartilage cells are set free, their capsules rupture, and they disintegrate and disappear. The depth to which the fibrillation extends varies in different parts of the same joint. At times, as a result of the fibrillation, minute masses of cartilage and fibrillated matrix are set free into the joint cavity. The underlying bone may thus become exposed, and, if the process continues, the two osseous surfaces may be in contact. Wherever erosion of cartilage occurs there is practically always a compensatory growth of cartilage or of bone of the opposite articular facet, so that the articular surface of the two bones of the joint are always in contact, and thus, as a result of the erosion of the cartilage of one bone and a corresponding overgrowth of cartilage due to proliferation of the perichondrium of the opposite articulating surface, the surface of the line of articulation becomes very irregular and indented. End-results of all these changes in the joint, which may take years in their production, are luxations and ankylosis by deformity or locking.

Further, since in this type of joint, change by destruction of the cartilage takes place slowly, and is at first confined to a portion of the joint surface only, motion of the joint continues for a long time. Under these circumstances it always happens that the articular surface of the joint, denuded of cartilage and still movable, undergoes marked thickening of the bone trabeculæ, and the marrow spaces of the articular ends of the bones may become completely obliterated. The X ray appearances show that the bone is very dense, and the exposed bone surface under friction from constant movement gets highly polished, and is known as eburnated bone.

Secondary changes take place in the shafts of the bones entering into the joint. These changes consist in an increase in the activity of the perichondrium at the periphery of the joint, and consequent new formation of cartilage which may be transformed into bone, causing an irregular and nodular increase in the size of the head of the bone and producing much deformity, known as "lipping," which is really not a degenerative, but a proliferative change. In those joints in which inflammation is followed by degeneration, or because of the loss of surface conformation, muscle shortening or capsular contraction, and motion is impossible, greatly impeded, or its resumption after the active process has subsided has been unduly delayed, the atrophy which appears during the early stages becomes more or less permanent.

The Association of Neurological with Arthritic Symptoms.

Finally, there are certain peculiarities characteristic of some forms of chronic arthritis which are apparently very difficult to bring into correlation with an infective origin. Nathan says that the peculiar deformations of the hands and fingers, the acroparæsthesia, and the premonitory weakness and spasm cannot be ascribed to the infectious focus within the joint at all. In many of these cases the symptoms simply indicate nerve irritation, or at most a perineuritis. Thus one case may show distinctly the characteristic contracture and trophic disturbance of an ulnar neuritis. In others the ulnar neuritis is complicated by the wrist drop of a radial neuritis; while in others one gets the peculiar deformity following a median neuritis.

The fact that there may be peripheral and central neural involvement also explains the changes in the skin, such as glossiness and ulceration of skin and nails, the œdema and the anomalies of sweat secretion so common in some of these cases. Nathan, in his experiments on dogs, found that in a large proportion of cases that the joints of the vertebral column were involved in the same way as those of the hand. That is to say, that in early cases of multiple chronic arthritis involving the joints of the hand and digits he also found identically the same processes going on in the spinal column. Hence he argues that when neurological symptoms are associated with arthritis it must be concluded that the spinal column is involved in the morbid process, and that the vertebral changes, consisting of endosteal and sub-periosteal inflammation, have led to epidural and perispinal exudation, causing root or slight spinal compression, which may or may not be permanent. If his deductions are correct it explains why so many cases of polyarthritis present muscular atrophy and acroparæsthesias in the early stages and even in the pre-articular stages. In such cases no doubt the epidural surfaces of the vertebræ have become involved before the peripheral articulations.

Nathan's paper on "Polyarthritis and Spondylitis," published in the *American Journal of Medical Sciences* for 1916, is a most interesting and instructive one. Marked cases of spondylitis with definite osseous changes produce in some cases well-marked neural phenomena, which may or may not be associated with a polyarticular arthritis, but the diagnosis of endosteal or periosteal inflammation of the bones of the vertebral joints in its early stages at present seems to be almost an impossibility even with the X rays. Still, the fact that Nathan was able to produce by experiments on dogs changes in the vertebral joints identical with those which have been described in the human subject is a very strong argument in favour of his theory.

There are still other reasons for marked deformity; there are cases with deformity and complete dislocation of the phalanges, though the power is not much affected and the deformity does not correspond to peripheral or central nerve involvement, in which the radiograph shows no change in the bones. It was pointed out that the early stages of joint infection are characterised by intra- and peri-articular effusions, and in some cases the effusion is enormous. An effusion which reaches great proportions always leads to relaxation of the capsule and periarticular structures and, finally, to dislocation of the joints.

Conclusion.

Let me conclude this paper with a word of caution from Nathan. "Though it is not unlikely that a focus in a tooth is sometimes, and one in the tonsil is often, the point of entry for bacteria, it should be remembered that once the micro-organism has entered the blood its connexion with the portal of entry ceases. For this reason, though the removal of the affected teeth or tonsil will, if these are really the site of the original focus (which is not by any means always certain even when they are abnormal), prevent reinfection or recurrences, such proceedings have absolutely no influence upon the joint condition as it already exists. Moreover, it must be remembered that a focus in the joint structures, like a focus anywhere else, besides causing local changes, may be, and no doubt often is, a source of general infection and metastases."

References.—1. Goldthwaite: Boston Medical and Surgical Journal, 1904. 2. Nicholls and Richardson: Boston Med. and Surg. Journal, 1905. 3. Nicholls and Richardson: Amer. Jour. Med. Research, 1909, vol. cxxi. 4. Lindsay Milne: Journal of Pathology, October, 1911. 5. Peter Daniel: "Arthritis," John Bale, Sons, and Danielsson, 1912. 6. P. W. Nathan: Amer. Jour. Med. Sciences, 1916. 7. P. W. Nathan: Amer. Jour. Med. Sciences, 1917. 8. G. L. Kerr Pringle: Edin. Med. Jour., July, 1911.

LITERARY INTELLIGENCE.—**A new set of Manuals** for Medical Students is about to appear under the general heading of "The Students' Synopsis Series." The publishers, Messrs. J. and A. Churchill, announce the immediate issue of "Pharmacology," by Dr. Douglas Cow, and "Dentistry," by Mr. A. Bayford Underwood, while a "Synopsis of Surgery," by Mr. Ivor Back and Mr. A. Tudor Edwards, is in the press.

DR. ALBERT ABRAMS'S
METHOD OF PERCUSSION
TO DELINEATE THE SOLID ORGANS IN THE CHEST AND ABDOMEN.

BY SIR JAMES BARR, M.D. GLASG., LL.D. LIVERP. AND TORONTO.

IN THE LANCET of March 6th there appeared a very interesting and instructive article by Dr. Abrams on Topographic Percussion and Visceral Tonicity. This paper, I hope, will further elucidate some of the problems there set forth. Dr. Abrams reckons that in the ordinary run of diagnosis there are about 50 per cent. of errors, and recently Dr. Edmund I. Spriggs has followed in a similar strain. In order to reduce those errors to a minimum Dr. Abrams has introduced various novel methods of diagnosis, but in this communication I intend to confine my observations to the question of percussion. Dr. Abrams is, perhaps, doing more than anyone else in the present day to resuscitate the lost art of physical diagnosis, but he would be among the first to acknowledge that there is no individual or system infallible, and would, no doubt, agree with his countryman that "he who never made a mistake never made anything." All Dr. Abrams's methods require an acute sense of hearing and a delicate sense of touch. Those who are not thus endowed, or who are unwilling to take the trouble to cultivate those senses, need not waste their time in reading this paper.

Dr. Abrams's original description of "A New Method of Percussion" was very brief, only occupying about three octavo pages in large type. It appeared in the *Medical Record* of Feb. 16th, 1918, and was reprinted in *Physico-Clinical Medicine* of December of the same year. I have not seen any reference to the method in current medical literature, and I shall therefore deal with it somewhat in detail. His article begins:—

"In percussion, despite its antiquity and supreme clinical importance, it is difficult to eliminate the personal equation and the prejudiced preconception of perceiving what is expected to be perceived. In dwelling on the deficiencies of this art the writer does so, not as a rebuke to the Herculean efforts made by traditional investigators, but to arraign our complacency, which accepts things as they are and views as a sacrilegist anyone who questions established methods."

Dr. Abrams's Method of Mapping Out the Deep Cardiac Area.

I shall begin with his method of mapping out the deep cardiac area, as that will form a good basis for what follows. There are many physicians who honestly acknowledge that they are unable to percuss out the deep cardiac area, and question the ability of anyone else to do so. There is at least one distinguished physician who sarcastically asks those who, he thinks, attempt the impossible, have you percussed the heart in systole or diastole? He seems to have forgotten that there is very little variation in the size of the heart on the whole during the various phases, and it occupies the same place during all its phases. The superficial cardiac area is of no value, and many physicians who have the temerity to illustrate their writings with sketches of the deep areas merely portray their own ignorance. It is surely, therefore, important that some serious attempt should be made to arrive at accuracy.

In carrying out Abrams's method the patient should stand on a large aluminium or copper plate which has been earthed, and face due west. It is convenient to have two plates, each of which need not be much larger than a large foot, as they can be placed widely apart, and in these observations it is important that the limbs should be well separated to prevent any risk of short circuiting. For experimental work a single large square plate of at least four square feet in superfices is very useful as it can be placed so that the four sides will represent north, south, east, and west. On a plate of this size the patient can be turned rapidly in any direction, and his feet kept widely apart, or brought close together as desired.

There are many physicians who do not know the orientation of their own consulting rooms, and for such the acquisition of a compass is necessary. At present in this country the magnetic meridian runs 16 degrees west of true north, which is rather less than a point and a half of the compass; for practical purposes this may be disregarded, but if you wish to find the true north and west, &c., you have only to reckon a point and a half to the right of your compass bearings. Of course, there must be no magnetic material in the room sufficient to disturb your compass.

When the patient is standing on the earthed plate or plates, facing due west, with arms held away from the sides and chest bared, you begin to mark out the left border of the heart. You give a rapid series of brisk but gentle taps on the acromial end of the left clavicle with the middle finger of the right hand; at the same time you firmly draw the fore or middle finger of the left hand over the chest towards the heart, and as soon as this finger reaches the border of the heart there is a distinct change in the note of the percussion on the clavicle. Moreover, if your finger be in an intercostal space you can distinctly feel the impact of the heart. When you reach the point yielding dullness you can correct your observation by moving the skin back without altering the position of your finger on the latter, and you then get a clear resonant note. Then bring your finger, with the skin, forward to the former position and the note again becomes dull. These observations can and should be corroborated by the stethoscope, shifting the bell from without towards the heart, and once the border of the latter is reached you hear a distinct change in the percussion note. The old wooden stethoscope is the best, but if for this work it is found to be inconvenient I use a small phonendoscope with a centre knob about five millimetres in diameter. No one ever did or ever could become a skilful auscultator who uses that abominable spring contraption called a binaural stethoscope; sensitive ears could not bear such pressure and extraneous sounds for five minutes.

Having marked out the left border with a dermatograph, you proceed in a similar manner to delineate the right border by percussing the acromial end of the right clavicle. If you be ambidextrous you had better percuss with the left middle finger and use the right hand for delineating; there is, however, no difficulty in slightly changing your position so as to percuss with the right hand.

The same method can be used for mapping out pleural effusion, lobar pneumonia, solid patches in the lung from any cause. When the patient is earthed and facing west Dr. Abrams has discovered specific areas of dullness in the chest and abdomen in certain diseases. To take only one example, which can be easily verified. In cases of cancer, no matter where situated, when the patient is earthed as before directed, let him place his left hand on his right shoulder so as to pull the left scapula outwards, and hold his right arm away from the body there will be found an oval area of impaired percussion about 3 in. long by 2½ in. wide in the left interscapular area. Dr. Abrams's figures, 7 by 5 cm., are rather less. This can be easily mapped out with a stethoscope when percussing the acromial end of the left clavicle, or more conveniently by his other method of direct percussion—viz., place the left forefinger on the chest, overlap it with the middle finger, and then percuss the terminal phalanx of the latter. As the polarity of cancer is positive this dull area disappears when the patient faces south, and returns when he again faces west.

Another Method.

There is another method of mapping out the deep cardiac area similar to that generally adopted in mapping the hollow organs such as the stomach, and to which Pirera lays claim. Place the bell of the stethoscope over the superficial cardiac area, draw your finger from without towards the heart, and when you have reached the border of the latter, or rather when you have somewhat overlapped it, there is a distinct change of note; this is like percussing out a ledge underneath a table and is no more reliable. The ease and accuracy with which you can mark out the ledge depends on the amount of support or, in other words, on the tone of the ledge and on the extent of the overlapping board. In accuracy it is not comparable with Abrams's method. The upper border of the liver can be determined either by the palpatory or auscultatory method with percussion of the acromial end of the right clavicle. For the upper border of the spleen percuss the left clavicle.

The lower border of the liver can be determined by the palpatory or auscultatory method, especially the latter, and percussing the right anterior superior iliac spine. For the spleen percuss the left anterior superior iliac spine. Both kidneys can be easily mapped out by the auscultatory method, and percussing the respective iliac spines. The same methods can be used for mapping out growths in the abdomen.

Unfortunately, patients cannot always stand up, nor is it always convenient to have them earthed and facing the west. With patients lying in bed and without any particular regard to the points of the compass, I have successfully carried out Abrams's method, but in such

circumstances I prefer a method which I introduced many years ago for locating a lobar pneumonia within the first six or 12 hours of its existence. Possibly I may be prejudiced because the method is my own. I lay the left hand with all the fingers spread out firmly on the chest so as to eliminate the vibrations of the chest walls; I then lightly percuss the middle finger and the slightest impairment in the resonance is easily detected, the lighter the percussion the more easy it is to determine differences in resonance. This method is applicable to the delineation of any organ in the chest or abdomen.

When I was engaged teaching students I used to show them how to palpate the deep cardiac area blindfolded, and then allow them to verify my palpation area by percussion. This is an exceedingly simple matter in children, and in any person with pliant costal cartilages. In all methods of percussion it is a good plan to shut your eyes as thus your hearing is in no way distracted, and as Abrams would say, you are less liable to hear simply what you expect to hear.

A NOTE ON THE ERYTHROCYTES IN MALARIA.

BY ROBERT CRAIK, M.D. GLASG.

SOME years ago I saw a man in whose blood malignant rings were found, and noticed that, although infected corpuscles were not as numerous as 1 in 1000 reds, yet multiple infection of a disc with two or three parasites was not uncommon. Again, in 1916, in a soldier with benign tertians, a disc was seen with two parasites not infrequently. Segmentation in these two parasites occurs mainly in internal organs like the spleen, where choice of corpuscles may be restricted; but even so, in malignant tertian multiple infection is so conspicuous as to suggest lessened resistance in certain erythrocytes.

In this connexion it occurred to me that the action of lead might yield information. When lead is given, in health or in minor ailments, the blood film in most persons shows, in three to seven days, a few polychrome, polychrome punctated, and punctated reds. In a man of 22, with slight gleet but otherwise healthy, a film on the sixth day of administration showed no change. On the next day a distinct change was observed, and a count gave 4,800,000 reds and 8000 whites. While counting 100 whites there were seen 40 reds showing punctate basophilia—that is, 3200 per c.mm., or 1 in 1500 reds. On the following day these were increased—certainly 1 in 1000 reds. Beyond this there was little increase, and the lead was stopped on the twelfth day. There were usually as many polychrome as punctated reds. My impression is that punctated discs are always polychrome when they first appear.

There is general agreement that polychromasia means premature birth of the erythrocyte, and that punctate basophilia denotes something more pathological. Even in mild anæmia the former is seldom absent, whereas the latter is rarely present unless the anæmia is really serious. Only when punctate basophilia is seen in normal blood associated with but little polychromasia is it pathognomonic of lead poisoning. Thus lead enables one to turn into the circulation marked discs by which parasites may be traced.

Accordingly in two mild tertians, with infected corpuscles less than 1 in 500, and with practically normal blood, this mixture was given: Pb acetate 20 gr.; ac. acet. dil. ʒi.; aq. (distil.) chlorof. ad ʒviii., ʒss. t.d.s. On the fourth day young rings were found in polychrome and in punctated discs. Young parasites occurred in normocytes also, and some marked discs were uninfected. Next day, as well as rings, amœboid and large pigmented forms were seen in punctated discs. This proves the life of a punctated disc to extend to two days at least. In polychrome or in polychrome punctated discs there were never seen any but young rings. This proves that within 24 hours the polychrome disc develops into a normocyte. In the same time a polychrome punctated becomes simply a punctated red. The fact that polychromes increase hardly at all after the first day is thus explained, for we may assume the daily output is about the same.

For the same reason we may infer that punctation is a transient phase in the life of an erythrocyte. And I suspect that a similar test with the quartan parasite would show that punctation disappears within 72 hours in approximately normal blood. Now these young, immature erythrocytes were in small numbers, about 2 in 1000 reds, yet the invading parasites, which were not numerous, readily found them. Multiple infection suggests that certain corpuscles are less resistant than others and the case in point indicates that these are the youngest corpuscles. Schüffner's dots were present in neither of these patients, but the dots should not be mistaken for punctate basophilia. The latter spots are blue-black and present in uninfected discs also; the dots are red, occur in infected discs only, and the smallest invading parasites are not associated with them. With median rings it is not easy to be sure whether a finely granular condition or a diffuse coppery rose (Wright) staining is the first stage. As the parasite ages red dots become distinct. In short, there is a basophil polychromasia and punctate basophilia on the one hand, and azurophil polychromasia and punctate azurophilia peculiar to the infected disc on the other.

Finally, in severe and prolonged malaria punctate basophilia often appears, but never apart from other signs (e.g., poikilocytosis, erythroblastosis) of serious anæmia. In such cases Schüffner's dots must have been encountered in the same film, but I am not aware that they have been seen in the same corpuscle with punctate basophilia. Possibly they are not so closely associated. The dots may only occur on invasion of mature corpuscles with full Hb complement. This would explain the absence of dots in most cases of benign tertian, the organism being less virulent or the corpuscles so resistant that only the youngest are vulnerable. And though infected cells are only 1 in 500 (= 10 c.cm. of blood destroyed in two days) the loss is confined to young cells and will lead to increase in the proportion of older cells—that is, to increase of death-rate. No doubt this will be met by erythrogenesis, but the result will be increase of less resistant cells, and this will play the game for the parasites.

Ealing, W.

ON THE CHOICE OF INDIVIDUALS FOR COLLIERY RESCUE WORK.

BY G. ARBOUR STEPHENS, M.D., B.S., B.SC. LOND.

As honorary medical officer of the Swansea Collieries Rescue Station I thought it advisable to make a medical examination of some of the men attending the practical classes held by Mr. Riddiford at the premises on the Strand. At these classes the men are trained to carry out various laborious exercises in a gallery that is filled with noxious fumes, and in order to do this they have to wear the oxygen apparatus under service conditions. With Mr. Riddiford's help I have examined over 50 men drawn from various collieries, and the conclusion I have arrived at is that the majority of the hearts are not first class. The table of results of this examination shows that the men who offer their services do so, not necessarily because they are strong and virile, but for other and varying motives.

The health-rate of the colliers is good, so that one would have expected a better class of man from the physical point of view, but the fact is that a large proportion of the men were "officials" of one grade or another. For rescue work one should have strong, active, healthy men, and if in the future the question of remuneration should arise, efficiency as well as proficiency must be considered. The following examples by way of illustration may be of interest:—

1. A man, aged 63, with thickened arteries and an abnormal heart, was considerably distressed after the practice. His age alone ought to have precluded him, but no doubt some element of "bravado" entered into his reasons for taking up the work.

2. One of 57 had a heart whose reserve power was much below normal.

3. A man, aged 45, was upset after the practice and his heart was abnormal.

4. The following, aged 47, 44, 41, 42, and 41, all had abnormal conditions of the heart.

5. Only two of 40 years of age had satisfactory hearts, but one of these had poor teeth.

6. Several others had pyorrhœa, so that obviously they were not in the best condition for combating adverse conditions. Proper emphasis should be laid upon the mouth conditions of those who undertake rescue work.

7. Four men were in a "nervy" condition; one of them had an irregularly beating heart, whilst another suffered from insomnia and had on one occasion lost his memory for three months.

8. Smoking in several cases was indulged in to excess, with the result that men were not fit. A, aged 37, smoked 4 ounces of shag per week and his heart was abnormal; B, aged 24, admitted to 3 packets of woodbines a day, which showed their effect on his heart; C smoked 2 ounces of shag a week and had an irregular heart. Only one heavy smoker (and he smoked 40 cigarettes a day) had a good heart.

Table of 50 Cases Showing Effects of Smoking Habits on the Heart.

No.	Age.	Smoking habits.	Condition of heart and remarks.	No.	Age.	Smoking habits.	Condition of heart and remarks.
1	30	10 cig. a day	Mitral murmur	24	37	1 oz. a week.	Heart sounds weak.
2	20*	Non-smoker	Toxic.	25	37	4 oz. shag a week.	Toxic.
3	21		Heart sounds weak.	26	31	10 cig. a day	Fairly good.
4	32	2 oz. shag a week.	Toxic (extra-systoles).	27	34	Non-smoker.	Toxic (pyorrhœa present).
5	57		Toxic.	28	26	10 cig. a day.	Very good.
6	27	Non-smoker.	Very good.	29	28		,,
7	40*	15 cig. a day	Toxic (pyorrhœa present).	30	27	20 cig. a day	Fair.
8	29	10 ,, ,,	Good.	31	22	Non-smoker	Good.
9	23*	Non-smoker.	Very good.	32	22		Toxic.
10	25	40 cig. a day	,,	33	27*	10 cig. a day	Very good.
11	24	20 ,, ,,	Toxic.	34	26	Non-smoker.	Good.
12	41	2½ oz. a week.	,,	35	26	Heavy smoker.	Heart irregular.
13	40	Non-smoker.	Very good.	36	30	20 cig. a day	Toxic.
14	42	Left off 6 weeks ago	Good.	37	39	20 ,, ,,	Toxic (dyspnœa present).
15	32	15 cig. a day.	Toxic (patient very nervous).	38	39	10 ,, ,,	Heart sounds faint.
16	39		Very good.	39	26	10 ,, ,,	Toxic (dyspnœa present).
17	63	3 oz. a week.	Mitral murmur (thickened arteries).	40	32	7 ,, ,,	Toxic, rapid (bad teeth).
18	30	Non-smoker.	Heart sounds feeble (patient had lost memory for 3 months).	41	30	10 ,, ,,	Very good.
				42	44	10 ,, ,,	Toxic.
				43	37	15 ,, ,,	Toxic (bad teeth).
				44	31	20 ,, ,,	Fair.
19	24	15 cig. a day	Toxic.	45	44	10 ,, ,,	Fair (pyorrhœa).
20	38	Non-smoker	Good.	46	41	4 oz. shag weekly.	Very good.
21	45		Fair (patient somewhat nervous).	47	41		Fair.
				48	38		,,
22	47		Mitral murmur	49	33	10 cig. a day	Toxic (patient nervous).
23	31		Good.	50	38	Occasional.	Very good.

* = ex-army man.

The term "toxic" I apply to a state of the heart produced by some toxin, be it nicotine or any auto-intoxication, estimated by means of what I call a cardioscope, which consists of a bell receiver sufficiently large enough to cover the whole cardiac area. With such an instrument the two sounds of the normal heart are equal, whereas toxicity is shown by the marked shortening of the second sound.

9. One man turned up who had not been to bed for 48 hours and consequently was not fit for practice; such thoughtlessness might prejudice the lives of those to be rescued.

10. The three men who gave the best results were ex-army men, one of whom had been in Gallipoli and the East for a long time.

It is said that one volunteer is worth a dozen pressed men, but, as a result of my examination, I cannot agree with that statement. If this duty of rescue has to be done it must be done well, and undertaken by those men who are in a sound physical condition.

Clinical Notes:

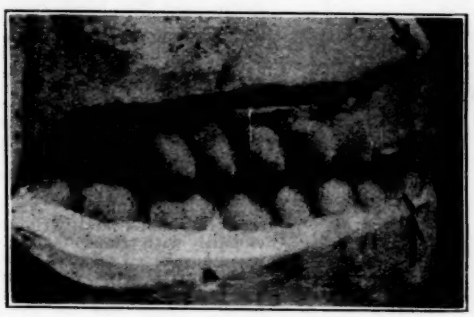
MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

PERFECT DENTITION IN OLD AGE.

BY J. O. BUTCHER, L.D.S. R.C.S. ENG.

THE photographs are from casts taken of the mouth of a woman, aged 84 years. In my experience this condition is unique. The missing molar 7 | I removed under nitrous oxide about two years ago at the age of 82 years, and I regret I could not procure models previous to that operation. Two or three of the superior incisors have been filled on the labial surface, and one or two other fillings can be seen in the photographs; otherwise the teeth are all strong and extremely

Cast of the mouth of a woman of 84 with 31 good strong teeth; the arrows mark the median plane. A, photograph taken from left side.



B, photograph taken from the right side; the right upper middle molar has been extracted.

well formed, and are more than efficient for the need of a person of such advanced age. The patient is blind from cataract, and suffered from a severe attack of typhoid at 18 years of age, and scarlet fever at 41 years. She is very moderate in diet. Both parents are said to have had exceptionally good teeth.

Harley-street, W.

HYSTERICAL PARALYSIS IN A BOY.

BY J. ARTHUR GORSKY, L.M.S.S.A.,
HOUSE PHYSICIAN, WESTMINSTER HOSPITAL.

THIS case appears worth recording because of the sudden cure after a long illness.

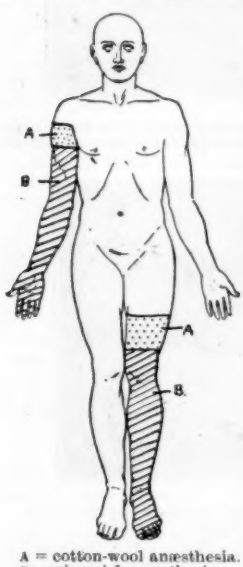
The patient, a boy scout, aged 14 years, was taken ill four months ago with very severe headache after returning from a cinema. He remained in bed for several weeks, and early in 1920 was admitted to a London hospital for two weeks, where a diagnosis of meningitis was said to have been made. At the end of this period he was sent to a convalescent home for a further three weeks; when he returned home he was found to have total paralysis of the right arm and left leg. He had in addition become deaf, especially in the right ear, and partially blind, the symptoms being most marked in the

right eye. The boy had no elevation of temperature, and there was no history of vomiting. During the last two or three weeks of February, 1920, the patient had numerous convulsive attacks, with violent twitchings of the head and limbs, and it is stated that three people were required to hold him down. During these attacks there was no loss of consciousness, and the boy was able to reply to questions. He neither bit his tongue nor passed urine during them.

During the week before admission to Westminster Hospital he had attacks of barking like a dog, lasting a quarter to a half hour at a time, and audible several doors away along the street. Sometimes, it is stated, he snapped at bystanders.

The patient was seen by Sir James Purves Stewart, senior physician to Westminster Hospital, who recognised the condition as hysteria, and the patient was admitted on March 4th to hospital for treatment. It is interesting to note that the diagnosis made previous to admission had been "tumour and meningitis at the base of the brain." He had been watched assiduously by his mother and benevolent lady visitors, and was also frequently visited by his spiritual adviser to soothe his dying moments.

Examination by Sir James Purves Stewart, March 5th, 1920.—He appeared an intelligent boy with normal speech and articulation. When shown a printed card and asked to read it he said he could not understand it. When spoken to he appeared deaf in the right ear and placed his hand to the left ear; nevertheless, later on, when told in an undertone to put out his tongue, he did so. The optic discs, pupils, and cranial nerves were normal. To cotton-wool touches there was anæsthesia of the right upper limb up to a horizontal line an inch below the acromial process, and of the left lower limb up to an inch below the middle of thigh. To pin-pricks there was analgesia up to a level of 3 inches below that of the cotton-wool anæsthesia. (See diagram.) The patient had apparent loss of joint-sense in the right fingers and elbow, and in the left foot and knee. With the eyes closed the "Yes-No" test was successful—i.e., the patient said "Yes" every time he was touched on the normal aspects of the body, and "No" on the anæsthetic areas. The right upper limb was much feebler than the left, but he could execute movements at all joints. (When previously examined on March 2nd and 4th the right arm was flaccid and totally paralysed.) The left lower limb was feebler than the right, but no individual movement was impossible in bed. He could raise it against slight resistance.



A = cotton-wool anæsthesia.
B = pin-prick anæsthesia.

Gait.—He could not stand or walk alone, and wriggled violently with trunk and limbs when supported on both sides. The supinator-jerks, knee-jerks, and ankle-jerks were brisk and equal. There was no ankle-clonus and the plantar reflexes were flexor. The cremasteric reflexes were normal, and the abdominal reflexes were equal and normal. Within a few minutes after the foregoing examination, by dint of encouragement and suggestion, the patient became able to walk alone, at first with difficulty, tending to cross his feet in a zig-zag fashion. Later he walked quite normally, and was then able to hop alternately, first on one leg and then on the other. After a few minutes' practice with a faradic battery, gradually diminishing in strength, the patient lost his anæsthesia and analgesia. He still remained partially blind and deaf. The patient was therefore taken up to the electrical department (he ran upstairs quite well), where Dr. E. S. Worrall applied the galvanic current to his temporal regions. The patient noticed the normal flash passing across his eyes as the current was reversed. Prior to this he was unable to read a printed card placed in front of him, but following the flash he was able to read perfectly. The hysterical deafness was promptly cured by the application of high-frequency tubes to his ears.

The interesting feature of the case is that although ill for four months the patient was cured within a few minutes after the examination and three days later he left hospital for a holiday at Weymouth.

I am deeply indebted to Sir James Purves Stewart for his kindness in allowing me to publish the notes of this case.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

WAR SECTION.

SCURVY.

A MEETING of this section of the Royal Society of Medicine was held on May 10th, when a paper on Scurvy was read by Surgeon-Captain P. W. BASSETT-SMITH, R.N., which appears in another column. In the short discussion which followed,

Major-General Sir WILLIAM GRANT MACPHERSON said that scurvy in Mesopotamia, notwithstanding the observations of Colonel W. H. Willcox, was not altogether due to want of recognition of its causes, but to the impossibility of getting fresh vegetables and other foods to troops operating in certain areas. These foods went bad in consequence of climatic conditions before reaching the troops, and it was these troops which suffered most. As regarded the resemblance between scurvy and beri-beri, this was pointed out by himself in a report which was published in the official reports of the Russo-Japanese war. He had observed thousands of cases of beri-beri amongst the Japanese in Manchuria in 1904 and 1905, followed by some 20,000 cases of scurvy amongst the Russians in Port Arthur, and the resemblance between the two diseases in their clinical aspects was so marked as to form the subject of a special report. The cause of beri-beri amongst the Japanese was the use of highly milled and over-cooked rice as the chief ration, and that of scurvy amongst the Russians the almost entire absence of fresh food and vegetables during the siege of Port Arthur.

Colonel C. J. MARTIN thought it established that the varieties of antiscorbutic substances or vitamines present in different foodstuffs varied greatly in their reaction to and destructibility by heat. He considered that fresh meat, if not over-cooked, was an extremely valuable antiscorbutic, and that orange-juice could stand prolonged heating without losing its antiscorbutic properties, while cabbage very rapidly lost these properties after boiling.

Colonel S. L. CUMMINS congratulated Surgeon-Captain Bassett-Smith on his valuable contribution to the practical as compared with the purely theoretical aspects of the prophylaxis of scurvy, and considered that both services were highly indebted to him for his labours in the preparation of a suitable antiscorbutic in such a portable, efficient, and convenient form as the lozenges he had exhibited to the meeting.

SECTION OF SURGERY: SUBSECTION OF ORTHOPÆDICS.

ANNUAL GENERAL MEETING.—EXHIBITION OF CASES.

THE annual general meeting of this section of the Royal Society of Medicine was held on May 4th, Mr. E. MUIRHEAD LITTLE, the President, being in the chair.

Mr. LAMING EVANS showed radiograms of a case of Dislocation of the Hips, Knees, Ankles, and Radii. As the patient was unable to be present the case will be shown at a meeting of the section next session.

Mr. C. J. MARSHALL showed a case of

Genu Varum of Late Onset.

The patient was a youth of 18 years. Nothing abnormal was noticed until a year ago, and little change occurred until six months ago, since when the condition had been growing rapidly worse. The general health had been otherwise good and there was no history of previous illness. The parents stated that the patient was markedly inferior to his brothers in height and general build. He was a sallow, greasy-skinned youth, about 5 feet 4 inches in height. The lower limbs showed severe genu varum, the knees being 5 inches apart, with the malleoli in contact. The curvature was more marked on the left side. In each limb the femur and tibia shared in the deformity, the tibia showing the greater change. Above the inner condyles of the femora a small expansion of the bone could be felt at the level of the epiphyseal cartilage. There was no such change

in the tibiæ. The lower ends of the radii and ulnæ seemed expanded, and the radial styloid process was lower than usual. Severe gingivitis was present. The spleen was slightly tender and descended to two fingers' breadths below the ribs on inspiration. The glands and joints showed nothing abnormal. The Wassermann reaction was negative. Except for a leucocytosis of 21,000, the blood was normal. Radiograms showed changes in the bones concerned, which were fairly typical of rickets. The epiphyseal interval was increased, and the adjoining parts of the diaphyses and epiphyses showed rarefaction.

In the case of the femora the softened tissue projected on the inner side. Both in the femora and in the tibiæ these changes affected *only the inner aspect of the epiphyseal regions*. On the outer sides fusion of epiphysis and diaphysis seemed already to have taken place. At the wrists identical changes were present at the epiphyseal lines in their entirety. There was apparently delayed growth of the ulnæ, the line lying much higher than that of the radius. In addition, the line in the radius was directed obliquely downwards and to the radial side.

Mr. Marshall considered that the feature of the case chiefly meriting attention was the curious selective action of the pathological process at the epiphyses in the knee region. Accepting the process as essentially the same as rickets, we were confronted with the question of late rickets or continued rickets. If the latter, why had fusion occurred already on one side of the epiphyses two years in advance of the usual date? The therapeutic test would decide whether the gingivitis was the source of infection. There might possibly, in addition, be some glandular deficiency. There was no evidence to place the case in the category of "nephritis associated with deformities at the knees" described in THE LANCET of Jan. 3rd last.

The treatment he proposed to adopt was attention to general hygiene, dental toilet, thyroid feeding for a time, and gradual correction of the deformity by screw pressure on metal plates embedded in plaster cases, gripping thighs and legs. After a suitable period of recumbency, sufficient to procure correction, he would order the wearing of knee splints with moulded thigh and calf pieces, and irons to the ankles.

Mr. R. C. ELMSLIE said that in late, continued, or recrudescent rickets, there were more characteristic changes than in this boy. Possibly the changes in bones which are called "rickety" were not always due to the same cause. He had met with the same changes in renal disease and had seen cases of intestinal infantilism which had all the appearance of rickets. In this case the changes were like those of rickets, and were probably due to sepsis. He would give such food as we knew from our experience of rickets would assist ossification.

Mr. ELMSLIE showed a case of

Paralytic Dislocation of the Hip.

It was that of a boy, aged 15, who had had infantile paralysis as a baby. The right lower limb was now affected and was 3 inches shorter than the left. The muscles around the hip were fairly strong, and all groups appeared to be active. The thigh muscles were normal, but below the knee the tibialis anticus was powerless, the remainder of the anterior tibial group being unaffected. The calf muscles were paralysed, with the exception of the long flexors of the toes. Talipes calcaneo-valgus was present. There was a scar on the outer side of the foot, but Mr. Elmslie did not know what operation had been performed. The hip was dislocated, the head of the femur being palpable at the level of the anterior superior iliac spine; the femoral neck was apparently much anteverted. X ray examination showed that the femoral head was well formed, but the acetabulum was shallow, and its upper margin was much flattened.

The PRESIDENT suggested that the case might be one of congenital dislocation, poliomyelitis occurring subsequently. As all the groups of muscles around the hip-joint were active, he thought that the paralysis could not have produced the dislocation.

Ankylosis.

Mr. P. B. ROTH showed two cases of Ankylosis.

The first was that of a woman, aged 43 years, with bony ankylosis of the left knee. In May, 1919, after some kneeling, the left knee began to swell and became hot and painful. Cold dressings were applied and improvement followed, but not recovery. She spent five months in bed, and treatment by Scott's dressing and splinting was carried out. No operation of any kind was performed. In March, 1920, she came to hospital complaining of stiffness of the left knee and swelling of the right ankle, the swelling coming on at night and subsiding by the morning. On examination there was complete bony ankylosis of the left knee, which, fortunately, had occurred in the extended position. There was slight heat and swelling of the right ankle. The pupils were unequal; there was severe pyorrhœa; the Wassermann reaction was negative. As X ray examination of the right ankle suggested gonorrhœa, treatment by gonococcal vaccine had been started.

The second case was one of bony ankylosis of the right ankle-joint in a woman aged 42. After having given birth to six healthy children, all of whom were alive and well, there was one premature birth at six or seven months, followed by two miscarriages. Shortly after the last miscarriage some ulceration appeared round the right ankle, and an abscess formed in the left buttock. The right foot had become dropped, and for this a splint was applied for six weeks, but no improvement followed. When seen in May, 1919, there was complete bony ankylosis of the right ankle-joint with the foot fully plantar-flexed. As the patient was unable to walk owing to the position of the foot, an anterior cunieform osteotomy was done in October, 1919, and the foot brought up to a right angle. Bony ankylosis had again formed, but, with the foot in that position, the patient was able to get about comfortably.

Mr. H. A. T. FAIRBANK showed a case of

Bilateral Congenital Elevation of the Shoulder.

The patient was a girl aged 10 years, and the mother had noticed that she could not raise the arm properly only two months ago. Both scapulæ lay at an abnormally high level, the right being higher than the left. Both were rather small, and that on the right had the vertebral border tilted up. On both sides the movements of these bones were much restricted; the vertebral border hardly moved at all from the spine, yet the left arm could be raised to the vertical, whilst the right only moved to a position a little beyond right angle abduction. The spinal column was flattened in the upper dorsal region, and there was a slight long dorsal curve to the right. Complete electrical examination of scapular muscles had not yet been carried out. A radiogram showed the presence of 13 ribs on each side, the highest being well formed and apparently a normal first rib on each side. The fifth, sixth, and seventh dorsal bodies, reckoning all ribs as bone ribs, seemed to be flattened and crowded together. Considering the malposition of the scapulæ and the extra ribs, the vertebral deformity was considered to be congenital and not the result of disease. No treatment was considered necessary.

Mr. ROTH read a note on

Abnormal Torsion of the Femoral Shaft.

At a recent meeting of the section he had shown a small child with waddling gait of unknown origin, and Dr. Martin Berry had suggested that it was a case of abnormal torsion of the femoral shaft. His paper was an account of a newly published work by Professor Karl Pearson entitled "A Study of the Long Bones of the English Skeleton."[1] He (Mr. Roth) thought that some particulars of the condition might be of interest to members of the section.

1. *Normal torsion of the shaft.*—There exists in the normal femur a torsion or twist of the shaft. If the upper end be regarded as fixed the torsion consists of a rotation inwards of the lower end. This torsion affects the whole of the shaft. It is much more marked in the left femur than in the right, and slightly more marked in the female than in the male. Thus in 735 femora measured, of which 359 were right and 376 left, the average angle of torsion for the former was 21·8° and for the latter 27·7°. Of the 359 right, of which 208 were males and 151 females, the average angle for the former was 21·7°, and for the latter 22·0°. Of the 376 left, of which 211 were males and 165 females, the average angle for the former was 26·7°, and for the latter 28·7°. The largest angle recorded was 69·6°.

2. *Measurement of the torsion.*—To measure the amount of torsion a torsiometer was devised for use with the detached femur.

3. *Abnormal torsion of the shaft.*—When the lower end of the femur is rotated inwards the torsion is known as *positive torsion*; when the lower end of the femur is rotated outwards it is known as *negative torsion*. Mr. Roth suggested that marked negative torsion could certainly give rise to symptoms, and he considered his case of the child with waddling gait as an example of the condition. Of the 735 femora examined by Professor Karl Pearson and his co-workers negative torsion was present in 13 cases, or 1·76 per cent., the average negative angle being 8·7°. In six of the cases there was deformity of the shaft suggestive of rickets.

4. *Recognition of abnormal (negative) torsion in the living subject.*—His case showed the following features: (1) the presence of rickets; (2) waddling gait; (3) rotation of the thighs outwards, so that when the child walked the two feet

[1] Reviewed in THE LANCET, May 15th.

enclosed an angle of 90°; (4) no demonstrable radiographic abnormality; (5) when supine on a flat surface, with the feet touching and toes pointing directly upwards, the great trochanter occupied a more anterior position than normal. The normal position for the trochanter with the patient in this position was exactly midway between the surface of the table and the upper surface of the thigh. In an older subject it might be possible to demonstrate the condition radiographically. The small trochanter ossifies at 12 or 13 years, and in the position described above, if negative torsion be present, the trochanter will be twisted out of sight.

5. *Treatment.*—The child must be taught to walk with its feet pointing straight forwards. If after several years of instruction and supervision the waddling gait persisted, there appeared no alternative to an osteotomy of the femur, with rotation inwards of the lower fragment for the number of degrees, and fixation in plaster.

An interesting point was Professor Pearson's discovery that the left femur was normally much more twisted than the right. One would have expected that the right foot would be more turned out than the left, but Mr. Roth said that he knew of no observations confirming this. It had been suggested to him that this might be why a blind-folded person set to walk straight across an open space walked in a circle. The cause of the condition he supposed to be a rickety softening of the bones. When one lay on one's back there was always unconscious rotation outwards of the thighs, due to gravity, and in a rickety child this rotation affected the growing architecture of the bones.

SECTION OF LARYNGOLOGY.

EXHIBITION OF CASES AND SPECIMENS.

A MEETING of this section of the Royal Society of Medicine was held on May 7th, Dr. A. BROWN KELLY occupying the chair.

Caseous Rhinitis.

Dr. DAN MCKENZIE showed a man, aged 61, the subject of Caseous Rhinitis.

His complaint was of nasal obstruction—on the right side for four months, on the left for two weeks. Two months of pain in the right supra-orbital region was relieved by epistaxis two weeks before the exhibitor saw him. There was an ill-defined swelling of the right cheek and some bulging of the superior maxilla. Since the onset the patient had become 2 st. lighter, and there was a foul discharge from the nose. There was a fleshy growth in the nose, bulging from the ethmoidal region on both sides. It looked like the malignant growth some had suggested. On trying to secure a portion for microscopy its nature was revealed, and its evacuation by syringing and curetting was commenced, but was not complete until six months had elapsed. A large perforation remained in the ethmoidal septum, and most of both ethmoidal labyrinths had disappeared. He could not find out anything about the pathogenesis of the condition. The caseous material was composed only of amorphous granular lipoids swarming with bacteria.

Dr. W. H. KELSON spoke of a case he showed in 1904. Though this condition looked like malignant disease, it did well when treated and recurrence was very rare. In his case staphylococci and Klebs-Löffler bacilli were found.—Mr. W. STUART-LOW remarked on the comparative rarity of these cases in later years. He thought the condition was due to pressure.—Mr. NORMAN PATTERSON referred to two cases in which caseous rhinitis was associated with malignant disease, and the diagnosis in the first instance was caseous rhinitis.—Mr. A. RYLAND said that in a case of his own the antero-meatal wall was broken down, and there was limited ethmoid disease in the nose. One patient had an ethmoid polyp, and he got her to blow down the nose, when she evacuated a large quantity of caseous material. The tip of his little finger went easily into the antrum. The report on the evacuated material was streptothrix in abundance, with other micro-organisms.—Mr. F. SPICER referred to a case in a man, aged 70, in whom the condition recurred five or six times.—The CHAIRMAN referred to 12 cases he had seen, but none so marked as that now shown. In one he diagnosed malignant disease, owing to bulging inwards of the antral wall and the amount of tissue present. Rhinitis caseosa was not a morbid entity, but the name served to indicate a condition in which, owing to mechanical causes, secretion was bottled up, became stagnant, and underwent chemical and physical changes. A foreign body might be present, but stagnation might occur in one of the accessory sinuses or cavities. He described several of his cases. Thorough ventilation and drainage of the aperture seemed to end the trouble.—Dr. G. W. HILL said that in the ten cases of the condition he has seen there was generally some obvious origin; in three there was necrosed bone, two were syphilitic. He referred to an operation for the condition which he did on a valuable horse.—Dr. J. DUNDAS GRANT agreed that the cause was generally some mechanical obstruction. In some the shape of the turbinate body favoured obstruction, and the presence of a slight cause of inflammation precipitated the condition. In one case he found a piece of blotting-paper.

Other Cases.

Dr. DAN MCKENZIE exhibited a case of Dental Abscess of the Nasal Septum. The patient, aged 19, a week before coming to hospital developed an alveolar abscess in connexion with the root of the right upper lateral incisor. A few days later it broke, but the nose became completely blocked. Pus could be squeezed down from the nose into the mouth, where it emerged from the opening in the gum. There was no history of trauma.

Mr. FRANK A. ROSE showed a Tooth which he removed from a right secondary bronchus. A skiagram was also exhibited.—Dr. IRWIN MOORE congratulated Mr. Rose on his success. An important feature was the removal by the per oral method. He referred to cases in which attempts to remove a foreign body from the same situation had been very difficult and failed more than once. This accident appeared to be common in America, but there were very few cases recorded in this country, from which it was reasonable to infer that our dental surgeons exercised great skill and care.

Mr. T. B. LAYTON showed a case of Frontal Sinusitis. The patient had a swelling of the right orbit, with diplopia. No pus was seen in the nasal fossa, but the mucous membrane covering the middle turbinal was œdematous and polypoid. At the operation a cavity the size of a duck's egg was found occupying the site of the frontal and anterior ethmoidal air cells. It contained polypoid masses of mucous membrane, which were scraped away. The patient was progressing, but was not yet well.—Dr. P. WATSON-WILLIAMS commented on the slight deformity with such a large cavity. The notes led him to regard the case rather as one of mucocele than sinusitis.

Mr. NORMAN PATTERSON and Dr. NORMAN H. PIKE showed a patient, a woman aged 45, with a Supraglottic Tumour. For five or six years she had had trouble with her voice, which was weak and toneless; there was also some difficulty in swallowing. She had lost 2 st. in weight.—Mr. W. H. JEWELL thought it was a cyst of the epiglottis.—Mr. STUART-LOW advocated persistent galvano-cautery puncture.—Mr. CYRIL HORSFORD did not think the galvano-cautery would cure the condition.

Dr. IRWIN MOORE showed a boy, aged 16, who was the subject of Left Frontal Sinus Suppuration, and on whom the Killian operation was performed. Following a cold, a temperature of 105°F. was developed, with severe pain over the left eye and temporal region. There was no purulent discharge from the nose, but he had a severe hæmorrhage from the left side. On opening the left frontal sinus, which was full of pus, no connexion with the external abscess could be traced. The right frontal sinus was healthy. The rapid recovery the exhibitor attributed to the use of B.I.P.

Mr. W. DOUGLAS HARMER showed a baby with a depressed bridge of the nose. Skiagrams showed no evidence of destruction or fracture; there was no rash nor enlargement of spleen, and the Wassermann test in both mother and child was negative. The general view expressed was that despite the negative Wassermann the case was syphilitic, and hyd. cum creta was recommended.

Mr. G. W. BADGEROW showed a patient with a laryngeal condition for diagnosis, and suggestions as to treatment. For two years the slightest exertion resulted in difficulty in breathing. Two stones were said to have been lost in weight in three months. No tubercle bacilli were detected in the sputum, and skiagrams showed no

signs of aneurysm or neoplasm. The vocal cords were fixed and red, and the ventricular bands œdematous.—Dr. WATSON-WILLIAMS did not consider a negative Wassermann as of conclusive value, and suggested anti-syphilitic treatment.

Mr. L. COLLEDGE exhibited a case of Laryngeal Tuberculosis in a patient who worked in a very dusty atmosphere. There was a small subglottic swelling below the anterior commissure, and some injection of the vocal cords.—The case was discussed by Mr. HORSFORD, Mr. STUART-LOW, Mr. J. F. O'MALLEY, Dr. DUNDAS GRANT, and others.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM: ANNUAL CONGRESS.

THE Annual Congress of this society took place in the rooms of the Royal Society of Medicine on April 29th and 30th and May 1st, under the presidency of Mr. J. B. STORY, P.R.C.S.I., whose opening address was reported in THE LANCET of May 15th, p. 1068.

Mr. JOHN ROWAN then opened a discussion on the

Non-operative Treatment of Glaucoma,

beginning with the question "Are not some cases of glaucoma better treated without operation, and, if so, what are the indications?" He had had a number of patients one eye of whom had been operated on, the other not. The operations had consisted in both iridectomy and trephining, by various good operators. Several patients had been kept under eserin for months, one for two years, with no deterioration in the eye condition, sometimes with improvement. A typical case he quoted was one with irregular contraction of the fields, plus tension, glaucomatous cupping, pale optic disc, with some atrophic appearance. Eserin was applied and continued, and the condition had remained as when first seen. Operation should be carried out when signs of advance of the disease were evident. In most cases of glaucoma he advised operation, and especially early operation. If he was right in contending that some cases were better without operation, he asked views as to the best indications for this.

Sir ANDERSON CRITCHETT agreed that the indication was to operate early, but all who had had experience must acknowledge, with pain and distress, that sometimes, whatever the type of operation carried out, there was a discouraging declension of vision. Some surgeons, indeed, had given up operating for chronic glaucoma.

Mr. T. HARRISON BUTLER said his habit was to operate on chronic glaucoma when the tonometer showed that the eye tension was raised and there were signs of functional failure. In these conditions he did not hesitate to operate even when it was the patient's only eye—indeed, the need for it seemed then increased. In some cases the vision after trephining was as good as 6/9. In one or two cases the lens had come forward.

Dr. G. MACKAY had noticed that when eserin or other miotic was used over long periods there was a tendency to the formation of pigmentary adhesions between iris and pupil, resulting in diminished transparency of the pupillary area. When examining cases of glaucoma the surgeon should be armed with a tonometer and a blood-pressure recorder. If the blood pressure were high, depletion by venesection should be a precedent to operation; then one class of cases in which there was hesitation about operating would be eliminated.

Mr. RAYNER D. BATTEN said that when the eye tension was about plus 1 and the cupping of the disc was in excess of the tension, this could usually be relieved by eserin and general constitutional treatment. In these cases he regarded the cupping of the disc as the disease, the glaucoma as the symptom. And the cupping was progressive, whether the tension was relieved or not. In some cases the cupping would increase the eye tension by interfering with posterior filtration.

Mr. RICHARDSON CROSS said that many cases of glaucoma called for operation without delay; in others caution should be exercised about interference. Even a good operation might reduce vision considerably. If central vision was good and there was no great narrowing of the fields, especially towards the fixation point, with an absence of inflammatory symptoms, one could safely rely on miotics. Alteration in the position and course of the vessels he regarded as a grave sign.

Mr. TREACHER COLLINS agreed that many cases of chronic glaucoma could be kept in check by the continuous use of eserin. He gave such patients eserin at first, and inspected the condition at frequent intervals. If the symptoms increased in spite of eserin, he advised operation. But additional factors which ought to be considered were the condition of the patient and his age—i.e., his expectation of life; his blood pressure must be taken into account too, for if it were high it was an additional danger in operating. But there was a most disappointing type of case, in which there ensued progressive failure of vision following a good operation.

Mr. GRAY CLEGG spoke of cases in which a halo was complained of, and in which the regular use of eserin kept serious developments at bay for a considerable time. But his patients were instructed to come at the least sign of subjective symptoms.

Mr. R. R. CRUISE thought the number of cases in which pressure had been overcome by drops must be small compared with those in which the results had been deplorable. He did not think the extraordinary value of the tonometer was at all sufficiently recognised; by its aid the exact progress of a case could be judged in the important matter of the ocular tension, which was the first indication that a case was going wrong.

Dr. A. HUGH THOMPSON said that as the ocular tension must vary from time to time, even at different hours in the same day, alteration in the visual fields would be a surer guide to the condition of a case of glaucoma than changes in tension. He had notes of hospital cases in which one eye of a patient had been operated upon, and its fellow had been kept under eserin for more than ten years, with very good results.

Mr. BISHOP HARMAN thought that the judgment concerning a case should be based upon the average rate of change going on. He quoted cases in which the regular use of eserin was successful over long periods.

Mr. A. GREENE thought it was to the physician one might turn for an explanation and remedy of the cause of glaucoma.

Mr. BERNARD CRIDLAND thought that most surgeons were not in favour of simple iridectomy for chronic glaucoma, especially in cases in which the field of vision had contracted and involved the fixation point. Von Graefe had pointed out that simple iridectomy in such a case was inhibitory on the nerve, and the vision rapidly got worse. Operation should be understood to mean decompression. In several cases he had obtained satisfactory fistulisation without touching the iris. He regarded the tonometer as giving the most valuable indication as to the progress of a case of glaucoma.

The PRESIDENT said that in cases in which the tension was distinctly high and there was contraction of the field and a central scotoma, he advised operation. The one he had done almost exclusively in recent years was trephining.

Infection after Cataract Operations.

Mr. HARRISON BUTLER discussed the probable reasons for the proportion of failures which occurred after cataract operations. There were two types of inflammation, having a different ætiology. The first type, the acute wound infection, the septic hyalitis, panophthalmitis, was most probably due to an infection from without, mostly by the pneumococcus, often derived from a diseased sac or an ethmoiditis. In the second group he thought the cause was mostly an endogenous infection or was due to toxæmia. He supported his views by quoting details of a number of cases. Diabetes he believed to be a fruitful cause of failure. He proceeded to give his experience with juvenile cataracts, uttering the warning that in children who seemed to be in poor condition operation should be deferred until they were strong, and care should be taken not to overlook any septic focus.

Mr. M. S. MAYOU said that endogenous infection occurred, but in some cases organisms lay latent in the eye until a temporary lowering of the resistance revived their activity, and suppuration resulted.

Mr. CRUISE did not think the services of the bacteriologist were enlisted so often as they should be in these cases. He spoke of cases in which the intestine or urine was contaminated, and an autogenous vaccine proved beneficial.

Diabetes in Relation to Eye Diseases.

On Friday morning Sir ARCHIBALD GARROD and Mr. R. FOSTER MOORE opened a discussion on this subject.

Sir ARCHIBALD GARROD said the ocular troubles of diabetics were much less obvious to the physician than to the ophthalmic surgeon. He addressed himself chiefly to the subject of diabetic retinitis. In the diabetic form the ocular hæmorrhages were apt to be guttate rather than flame-shaped, the white spots more opaque and sharply circumscribed, more scattered, and less apt to group themselves around the macula. But albuminuria in diabetes did not necessarily point to serious renal damage; the amount of albumin in the renal cases gave no sure clue to the gravity of the kidney lesion. Diabetic retinitis was not to be expected in patients below middle age, but albuminuric retinitis was met with in young patients, even in children. This suggested that the occurrence of retinitis in diabetes was not to be attributed to the accumulation of sugar in the blood nor of the accompanying acetone bodies. A contributory cause must be looked for other than the disorder of carbohydrate and protein metabolism, and if it should be true that the retinitis was associated with cardio-vascular changes this suggested an explanation. Most of the patients in his wards who had developed retinitis with diabetes had shown evidences of renal disease also. He suggested that both diabetic and albuminuric retinitis had high blood pressure and associated arterial changes. More could now be learned from an estimation of the sugar in the blood than from that in the urine. A line should be drawn between acute diabetic cases of early life, which ran a rapidly fatal course, and the mild diabetes of middle or later life, which might persist for many years without grave detriment to health. He considered that the factor determining this was the age of the patients and the tissue changes of advancing years. Account must be taken of the character of the diabetes, as well as the ocular lesions seen. It was generally agreed that diabetic retinitis had not so grave a prognostic import as had the albuminuric. Cataract seemed to be the commonest eye trouble to which diabetics were especially liable. He concluded by a reference to the recent great advances in the treatment of diabetes, remarking that before operating on diabetic patients, ophthalmic surgeons should see that they underwent, for at least a fortnight, treatment by one of the hunger-day methods.

Mr. FOSTER MOORE based his exposition on observations in 62 cases. The chief ocular complications of diabetes were retinitis, cataract, retro-bulbar neuritis, retinal and vitreous hæmorrhages, lipæmia retinalis. Lesser conditions met with included alterations in intra-ocular tension, alterations of refraction, iritis, debility of accommodation. Retinitis had affected his older patients only; there was only one as young as 39. These subjects usually had arterio-sclerosis also, sugar and albumin in the urine being common in them too. Of 51 cases of diabetes of all ages at St. Bartholomew's Hospital, only 5 had retinitis. Diabetics tended to develop hæmorrhages into the retina or vitreous. The prognosis of retinitis in diabetes was much less grave than in renal retinitis; 60 per cent. of Nettleship's cases lived longer than two years. The term "diabetic cataract" should be restricted to the somewhat rapid opacity of lens seen in young diabetic subjects. It was always bilateral and of a diffuse homogeneous type. Without having objective disease of any part of the eye, a certain number of diabetics developed defective vision. In some this was due to retro-bulbar neuritis. Six of his 62 patients had this. In certain cases of lipæmia a very characteristic ophthalmoscopic picture was seen. Concerning alterations of refraction, observers had noted a variation with the amount of sugar excreted; in most cases a decrease in the sugar output lessened the myopia. He had once seen an acute primary iritis develop in a patient who had diabetes, and in whom no other discoverable cause was present.

Dr. O. LEYTON said that in diabetes mellitus the excretion of other substances than sugar was impaired. He had tested the excretory function in a large number of diabetics, and concluded that in most the kidney itself was somewhat changed. Because the blood pressure of a diabetic was not raised, it must not be concluded that the vessels were not changed profoundly. The retinitis he regarded as due to a toxin. He emphasised the great alteration in metabolism produced by alimentary rest.

Dr. MACKAY said he had seen cataract develop to ripeness in so short a time as a week. He did not recall any special difficulty in the surgical treatment of cataract in glycosuric patients.

Mr. H. P. ADAMS said that of the last 31 cases of diabetic retinitis he had seen at the hospital, 22 were in women, 9 in men. Of 159 cases of other vascular troubles in the retina, 96 occurred in women, 63 in men. Of the 31 cases, 13 were 50 to 60 years of age at the onset, 15 between 60 and 70, 3 between 70 and 80. All but 5 of the 21 cases he had been able to trace were now dead. In those who lived longest after the disease was established the duration varied between eight and a half and four years.

Dr. P. J. CAMMIDGE said that records of 350 cases of diabetes which he had seen during the past few years confirmed the conclusions as to the age-incidence of cataract and retinitis, and he thought this could only be explained by the chemical changes taking place in the body at the various ages. Glycosuria was not a disease; he had seen a number of young people who had persistent glycosuria which was very little affected by changes in diet and whose health did not suffer. Two main groups of diabetes were the pancreatic and the hepatic. In the latter there was an increased formation of amino-acids, of which tyrosin was one, and there was an increase of fat in the blood, and as the patient got worse this fat-content increased. He considered that diabetic cataract was associated with changes in the amino-acid and fat-content of the blood.

Dr. C. O. HAWTHORNE spoke of the association of ocular palsies with glycosuria and the fundus changes which occur when sugar is present in the urine. In diabetes mellitus the ocular palsy was probably a peripheral neuritis affecting the terminations of one or other ocular nerve. The cases in which retinitis was present were by no means always those in which glucose was extreme in amount. There were cases in which the discovery of retinitis was accidental; there was no complaint of sight, and it showed the importance of a routine ophthalmoscopic examination.

Mr. R. R. JAMES gave his experience of extraction of cataracts in five young diabetics, with four satisfactory results. The ages of the patients ranged from 22 to 37 years. Cases of the kind were treated by the physicians in the hospital until there was a marked fall in the sugar output. He preferred not to do an iridectomy if it could be avoided.

Mr. P. C. BARDSLEY spoke of improvement in diabetics by the Allen Graham treatment, and the subsequent clearing up of the retinitis. In the so-called arterio-sclerotic retinitis he did not doubt the cause was a toxin.

Mr. E. H. E. STACK spoke of the profound effect produced on a diabetic patient on first coming into hospital by the sudden change in conditions and surroundings, which sometimes brought on rapid coma. Since he had made the change very gradual, there had been a marked diminution of cases of coma.

Mr. J. BURDON-COOPER referred to the finding of tyrosin and cholesterin in the lenses which had been removed from diabetics; he had not tested them for glycogen. His impression was that the acids and ferments which were secreted by the ciliary body were responsible for the hydrolytic change in the lens.

Mr. GRAY CLEGG summarised his experiences in 1660 cases.

The Preventive Treatment of Ophthalmia Neonatorum.

Members paid a visit on Saturday morning to the Metropolitan Asylums Board special hospital for ophthalmia, Kentish Town, under the guidance of Mr. Mayou.

Dr. GIBBON FITZGIBBON (Master of the Rotunda Hospital, Dublin) opened the debate. From 1898 to 1919 (except for a short interval) there were 92 cases of ophthalmia neonatorum reported as having developed in the maternity department of the lying-in hospital. In that period 38,106 infants were born and left the hospital alive, giving an incidence-rate of 0·24 per cent. Credé's prophylactic method had been in use during this term. The routine at his hospital was, that as soon as the child was born the eyes were wiped clear of all mucus with swabs of boric lotion, without attempting to open the eyes. When the child had been bathed, one or two drops of a 1 per cent. solution of silver nitrate were dropped into each eye. No further treatment was adopted unless active disease appeared. He thought infants acquired the disease by passing through an infected canal. Purulent ophthalmia, he believed, developed after birth from infection of the conjunctiva by a variety of organisms, but the cases due to the gonococcus were the serious ones, and were most resistant to treatment. Many required no more than one application of silver nitrate, which was very efficacious. The pus should be wiped away before applying the remedy, otherwise the latter was liable to be partly decomposed by the pus. An efficient vaccine was a great help; 3 to 5 millions was the maximum dose for an infant.

Mr. MAYOU had often found the Meibomian secretion to contain the xerosis bacillus on the third day of life. The greasy condition of the lid margin probably helped to prevent the infected vaginal discharge entering the conjunctival sac, but a more important factor was the quick passage of the child through the vagina. In one case of twins the first child was infected, the second escaped. He uttered a strong warning against the use of nitrate of silver by the inexperienced; 10 per cent. protargol was safer for those not conversant with the work. Local immunity was, he considered, closely bound up with the monocellular exudation occurring after the acute stage of the inflammation began to subside. St. Margaret's Hospital was opened by the Metropolitan Asylums Board in 1918, with 48 beds for women and infants, and there was need for extension. During 1919 146 mothers and 281 babies were admitted. There were eight wards, a theatre for treatment, and a small bacteriological laboratory. It was very necessary to have separate lavatory accommodation for the gonococcal and non-gonococcal cases. Much nursing was required; there was one nurse to every two patients here. Fly-nets to cover the cots were necessary in the summer. Despite notification, there was difficulty in getting patients sufficiently early; too large a proportion already had corneal ulcer when admitted. Silver preparations were not used until the swelling of the lids began to subside; used earlier they aggravated the condition. All preparations were rubbed in with wool mops, not merely laid on. External canthotomy he considered a valuable asset in treatment. Gonococci had been found in the conjunctiva 28 days after the cessation of all discharge. Mothers were instructed to return on the slightest sign of recurrence. Of 382 babies admitted 372 were suffering from ophthalmia neonatorum; of the latter 12 had only one eye affected. Of the 732 eyes 85 had the cornea ulcerated on admission. In 368 it was hazy. Of the 85 ulcerated eyes 28 had already perforated, and 33 perforated after admission; 28 did so on admission.

Dr. MARY SCHARLIEB had seen a good deal of ophthalmia neonatorum in India. She did not see it in her own practice because she followed out the instructions given at the large Vienna clinic where she was trained. The custom there was to wash the child's face as soon as the head was born, and the same with the hands and arms. As soon as the child's first toilet was finished, the eyes were carefully opened with two fingers, and nitrate of silver solution instilled into them. At that institution the occurrence of ophthalmia neonatorum was a rarity. She emphasised the importance of instructing medical students, midwives, and nurses to look out for trouble; thousands of eyes were lost because heed was not paid to the initial symptoms.

Dr. ELIZABETH MACRORY spoke of the rules of the Central Midwives Board in regard to the calling in of a medical man when anything unusual was noticed about an infant's eyes, and the notification of having done so. Many such infants were found not to have the disease. The incidence-rate of the condition per 1000 births in London varied between 10·37 in 1919 and 7·25 in 1915. In the practice of midwives the incidence per 1000 was 6·5 in 1916, 6·5 in 1917, 10·75 in 1918, 11·0 in 1919. The later increase might be due to greater care in notification. In 1914, out of 557 cases of inflammation of the eyes in the practice of midwives, 6 showed damage to the cornea; in 1919 out of 840 births in midwives' practice, 15 had corneal damage.

Mr. SYDNEY STEPHENSON said more than a hundred years had passed since Benjamin Gibson, of Manchester, laid down the rules whereby ophthalmia might be prevented in babies, and these could scarcely be improved upon at the present day. Credé's method of prophylaxis was the greatest step. In a series of 24,724 births up to 1895 in which Credé's method was carried out, ophthalmia occurred in only 0·65 per cent. He had collected the statistics from 1895, numbering 51,728 births, and giving an incidence-rate of only 0·75 per cent. When mother and child occupied the same bed infection might occur from the lochia. Not every case of ophthalmia was due to the gonococcus. He suggested that nitrate of silver solution of 1 per cent. strength should be used, as it was found to be as effective a protective as the 2 per cent. solution. He reminded the meeting of the simple cleansing of the eyelids at birth practised by Samuel Haig, of Camberwell, in 1879, with the result that he never had a case of ophthalmia neonatorum in his practice.

Dr. MAITLAND RAMSAY gave his experiences of the disease in Glasgow. To achieve success parents must coöperate, but in many instances this was out of the question, owing to the ill-health, carelessness, or ignorance of the mother. Many of the children were kept under observation by the public health authorities until they attained school age. Arthritis, synovitis, glandular enlargement, &c., in the parents of the cases had been uncommon. When ophthalmia neonatorum was associated with syphilis, disastrous results were the rule. They coexisted in about 9 per cent. of the cases treated in the wards. In ordinary cases 6·9 cases were notified by doctors per 1000 births. In 3·5 per cent. of cases the signs were present within 12 hours of birth, in 56 per cent. in from one to four days, in 32 per cent. from the fourth to the eighth day. In 42 per cent. the gonococcus was found. The results of treatment would be better if compulsory removal to hospital could be carried out in every case in which the home surroundings were unsatisfactory.

Dr. J. WHARTON briefly summarised the results obtained in Manchester. In 224 cases one or both eyes were lost beyond hope; in 229 cases an ulcer of the cornea had perforated, and he feared that most of these patients would be permanently blind. Since 1897 a special department for the treatment of cases as in-patients had been in operation at the Manchester Royal Eye Hospital, accommodation being provided for both mothers and infants.

Mr. A. L. WHITEHEAD said that in Leeds last year there were 7837 births, of which 4433 were attended by midwives. The total notified cases of ophthalmia neonatorum numbered 105, half of them in midwife-attended cases. In the treatment hourly irrigation was carried out by nurses wearing rubber gloves, the solutions used being boric lotion or potassium permanganate, or 1 in 1000 biniodide of mercury. That was followed by drops of 20 per cent. argyrol every hour. If the cornea could not be well seen, external canthotomy was at once peformed.

Dr. THOMAS STEVENSON related briefly the routine treatment carried out at St. Paul's Eye Hospital, Liverpool, which was started in 1908.

Dr. C. KILLICK spoke of the work in Bradford.

Mr. J. B. LAWFORD criticised the recent omission from the Regulations of the Central Midwives Board of all reference to Credé's method, or any substitute for it.

MEDICO-CHIRURGICAL SOCIETY OF EDINBURGH.

Treatment of Tuberculosis.

AT a meeting of this society held on May 5th, a discussion took place on the Treatment of Tuberculosis. The discussion was opened by Sir ROBERT PHILIP, who read a paper on the Modern Outlook on the Treatment of Tuberculosis, and by Sir HENRY GAUVAIN, who dealt with the Management of Non-Pulmonary Tuberculosis.

Sir Robert Philip contrasted the Hippocratic conception of phthisis with the modern outlook on tuberculosis, and showed how the disease, formerly regarded as always fatal, was one which satisfactorily yielded to treatment, particularly in the early stages. The widespread occurrence of tuberculosis and its natural tendency to cure had been demonstrated by many observers. Amongst the most striking figures were those of Reinhardt of Berne, who, in an extensive series of post-mortem examinations, made on individuals who had died from all varieties of disease, found evidences of tuberculosis in 96 per cent. of cases—32 per cent. showing active and 64 per cent. healed tubercle. It was well recognised that nature cured cases of the disease every day. The essentials of the development of tuberculosis were infection by the tubercle bacillus, the reaction of the tissues to invasion, and later the occurrence of systemic intoxication. The seat of the immediate localisation of the tubercular process was relatively unimportant. There was considerable resemblance between infection with tubercle and infection with syphilis, but tubercle was much more difficult to diagnose with certainty in the early stages. Its incubation period was prolonged and ill-defined; the possibilities of infection were numerous, obscure, and often connected with environment. After local infection with tubercle a sore might develop at the seat of inoculation, and in the guinea-pig after experimental injection with tuberculous material the occurrence of a sore was characteristic. The tubercle bacillus might enter the body by many different channels. The tonsils and posterior nares were important points of entry, and spread was by the lymphatics. A very acute form of lymphatic tuberculosis affected the Senegalese troops in France, and was accompanied by a high mortality. After entry of the bacillus, it might be conveyed to any part of the body, and the local lesion must be regarded as more or less incidental. The ultimate danger was the occurrence of systemic intoxication, which showed its effects most markedly upon the neuro-muscular structures, and which manifested itself early before the development of local physical signs. Cases should be frequently re-surveyed because of the possibility of recurrent manifestations, as even after apparent cure these cannot be excluded with certainty. Tuberculosis was a slow process as a rule, and a long period was required for efficient treatment. The official three months given under the National Health Insurance Act was useless, and was a waste of time and money. There was ample proof that proper treatment was followed by good results. Thirty years ago it was common to see advanced cases of pulmonary tuberculosis for the first time, whereas it was now rare. The progress that had been made was shown by the falling death-rate. In the 30 years from 1870 to 1900 the percentage fall in mortality was 41, and in the succeeding 20 years it was 45. The age of death was also considerably later. There was need for continuous investigation and fuller training of men on modern lines.

Sir HENRY GAUVAIN said that the treatment of non-pulmonary tuberculosis had largely been neglected owing to lack of opportunity. The average period of treatment usually accorded to such cases in hospital was one month, whereas it was recognised that cases of pulmonary tuberculosis required about two years. Surgical tuberculosis should no longer be considered as a local condition only. The "soil" was very important, and very largely influenced dissemination of the disease. Conservative treatment—by which was meant the adoption of all measures capable of increasing resistance—should be practised in preference to radical treatment, which was designed to remove the local manifestations. Conservative treatment meant suitable climate, fresh air, personal hygiene, and proper diet. While undergoing treatment proper occupation was necessary, and this should be of a kind to suit the particular class of case. A certain amount of discipline was also a necessity. Cases of surgical tuberculosis could be divided into three classes—those which required absolute rest in the recumbent posture, subacute or chronic cases which needed immobilisation of the affected part to allow of repair and to prevent deformity, and a class where support only was required. Heliotherapy was of value in some cases, which showed reaction to it by pigmentation. Excessive reaction must be avoided, and the patient should gradually be acclimatised to the treatment. Surgical treatment might be necessary for special complications such as tuberculous abscess or sinuses. Spontaneous opening of abscesses should never be allowed, as sinus formation was sure to follow. Instead of incision the part should be immobilised, and the abscess aspirated. By so doing, use was made of nature's barrier in the form of muscular aponeuroses and fasciæ. The good results following treatment along conservative lines were strikingly demonstrated by figures from the special hospital at Alton.

Mr. JOHN FRASER agreed with the efficacy of conservative methods in the treatment of surgical tuberculosis. He advocated, however, in addition, early operation in certain classes of cases, especially in early tubercle affecting the cervical glands, and where there was a focus of disease in a bone near a joint. In infants also, early operation might be desirable in some cases where it would be undesirable in older children. Extremely bad social conditions might also make operative interference more necessary.

Professor G. L. GULLAND emphasised the importance of goodwill on the part of the patient in making treatment a success.

Dr. I. STRUTHERS STEWART dealt with certain aspects of sanatorium treatment which were at present unsatisfactory, and urged the necessity for development and coördination of research.

Sir DAVID WALLACE referred particularly to tuberculosis of the genito-urinary tract.

Dr. LOGAN TURNER spoke of the frequency of laryngeal tuberculosis and of its influence on the prognosis in cases of phthisis, showing that the mortality was very appreciably increased.

Dr. FERGUS HEWAT referred to irritable heart as an important systemic manifestation in certain cases, and also of the necessity for repeated examination of the sputum.

Dr. GEORGE MACKAY and Dr. W. G. SYM dealt with tuberculous infections of the eye.—Professor F. M. CAIRD, Mr. C. W. CATHCART, and Dr. CHALMERS WATSON also spoke.

MANCHESTER MEDICAL SOCIETY.

Psychotherapy.

A MEETING of this society was held on March 3rd, Professor R. B. WILD, the President, being in the chair. A discussion was introduced by Professor T. H. PEAR in a paper on Psychological Analysis.

By psychological analysis, he said, is meant here "any method whereby the nature and relationship of the causes responsible for the patient's (mental) condition are determined, and the condition removed by the rearrangement and readjustment of these causes."[1] The term is wider than psycho-analysis; the latter should be reserved to describe that method which owes its inception to Sigmund Freud. The present discussion attempted to describe the nature and uses of psychological analysis (of which psycho-analysis is one example) in the diagnosis and treatment of what are known as the "functional nervous disorders." Of these disabilities there are two kinds, often, but not always, sharply distinguished from each other: (*a*) conversion hysteria; (*b*) the anxiety neuroses. These two types of disorder may be symptomatic of different kinds of mentality in a patient, and the cure may necessitate different methods of treatment. The thesis here put forward is that though psychological analysis is only one method in psychotherapy; it is (*a*) sometimes the only method which will be ultimately successful; because it is (*b*) the only "radical" method.

The different psychological processes involved in the methods known as suggestion, persuasion, and analysis were then discussed and compared. Reference was made to the view taken of the differences between these disorders by Dr. Bernard Hart. It was pointed out that the meaning attached to the word "suggestion" is usually extremely vague, and that though probably suggestion enters into treatment both by persuasion and analysis, it can be theoretically distinguished from them. The definitions of suggestion and persuasion, given in the article quoted above, were further discussed. In conclusion, it was pointed out that the adoption of all methods of psychotherapy, and in particular of the analytic method, assumed a knowledge of the technique and of the psychological processes underlying them. Emphasis was laid upon the necessity of training medical students in the future to understand and to discriminate between the uses of these various methods.

The following took part in the discussion: Professor E. S. REYNOLDS, Dr. D. E. CORE, Dr. S. HERBERT, Dr. A. V. STOCKS, Dr. S. R. WILSON.

[1] Bernard Hart, "The Methods of Psychotherapy," Proc. Roy. Soc. Med., vol. xii. (Section of Psychiatry), pp. 15-34.

Reviews and Notices of Books.

THE PRINCIPLES OF ANATOMY AS SEEN IN THE HAND.

By FREDERIC WOOD JONES, D.Sc., M.B., B.S. Lond. London; J. and A. Churchill. With 2 plates and 123 text-figures. 1920. Pp. 325. 15*s*.

ONE of the side results of the war is to be seen in the rediscovery of anatomy for clinical purposes, and it has been recognised by all who have had to do with the needs of the clinician that there are still uncharted and practically unknown details of bodily structure which, when worked out, will be made of value by the bedside. This book does not, it may be, open up any of this unexplored territory, but the author employs paths rather out of the way, tracks little used by the crowd, to give the medical reader, and even the routine anatomist, glimpses of the interest lying round them in the sphere of their everyday work. One cannot help regretting that books of this kind—and there are too few of them—do not often find their way into the hands of the ordinary student. The present divorce of anatomical study from its clinical application deprives the average student of what would prove to be a powerful incentive to work; an exceptional teacher will meet the want by providing another interest, more strictly scientific and anatomical, and this volume on the hand should be a valuable adjunct to his efforts. The time-table of a school curriculum, however, does not leave much time for extraneous reading, and it is probable that the book, for that reason, will afford more pleasure to his teachers than to the student.

If it is true that descriptive human anatomy still presents opportunities for more research, the assertion is even more applicable to the subjects associated with it. The study of human development, for example, is a matter which, when we advance beyond the uninspiring and rather sterile products of German manufacture, will turn out to have much to suggest, not only in anatomical explanations, but in the comprehension of the genesis of many pathological states. Reading his book, one has perhaps the impression that Professor Wood Jones does not lay stress enough on the ontogenetic development of the human hand. For example, an argument perhaps as strong as any other in support of Humphry's views on the morphology of the skeleton of the thumb, which the author adopts, is to be found in the details of formation and attachment of the long flexor tendon of that digit; again, without wishing to disagree with the author's conclusions, it may be pointed out that some suggestion of a post-minimus is ontogenetically afforded in the first attachments of the abductor of the little finger, if that muscle is considered to be a marginal member of a dorsal or inter-metacarpal group. Similar criticism might be brought forward as argument against unreserved acceptance of some conclusions. Professor Wood Jones believes that the hand is a primitive organ, more primitive in men, perhaps, than in some other animals, and he demonstrates his position by his formulæ and comparative observations; but the ontogenetic changes in the hand, even in the development of the apparently simple interossei, surely show that the human hand, so far, at least, as its intrinsic muscles are concerned, is a decided modification of what must have been a primitive condition. It would be a good thing to impress on the student the great value of the details of ontogenetic development.

Turning to less contentious matters, it is no ordinary pleasure to one who cares for his subject and its history to come across the names of old-time anatomists, extracts from whose half-forgotten works are frequently put in with effect by the author. Perhaps not the least interesting part of the work, from the student's point of view, will prove to be that which deals with the nervous connexions of the hand, in which many of the disconnected facts of his text-books are put before him in ways both interesting and coherent. There are certain small errors that could be removed in a future issue. Thus Fig. 85 is not correct in some of its points; the term "intermediate" would be an improvement on "medial," which has other meanings in the vocabulary of many, and the superficial flexor of the digits is usually designated "sublimis." Professor Wood Jones has, in addition, an unaccountable tendency to give the name Humphray to the late well-known Cambridge anatomist and surgeon. But these are very small matters, and it can be said at once, and heartily, that the book is one worth reading, and eminently readable, well got up, with clear and explanatory illustrations, and could with advantage be placed in the hands of every medical student who has attained to the investigation and contemplation of his intermediate subjects.

ROSE AND CARLESS'S MANUAL OF SURGERY.

Tenth edition. By ALBERT CARLESS, C.B.E., M.B., M.S. Lond., F.R.C.S. London: Baillière, Tindall, and Cox. 1920. Pp. 1562. 30*s*.

IN reviewing a new edition of a book so well known as "Rose and Carless's Manual of Surgery" it is unnecessary to notice more than the changes which have been made as compared with previous editions. This is the tenth edition, and five years have elapsed since the last. Five years of war and years in which the surgical skill of the medical profession was put to the severest tests. That the medical profession was not found wanting has been proclaimed publicly; never in the history of war has more been done for the wounded soldier. The fact that the medical profession was able to cope successfully with the thousands of severely wounded men was due to the sound training received during student life. There is no doubt that this text-book has helped to give this training, and one would like Mr. Carless to feel that "the weary hours of study spent over its pages" were worth while.

The additions to the work are mainly in the direction of knowledge gained in the war, with regard to the treatment of infected wounds, of fractures, and in making good the defects following injuries. Another change is the gathering of the X ray pictures into a supplement at the end of the book, instead of dispersing them through the text. This may be convenient for production, but of doubtful value to the student.

CHAPITRES CHOISIS DE CHIRURGIE.

By G. L. REGARD. Paris: A. Maloine et Fils. 1920. Pp. 430. Fr. 20.

M. Regard, a civilian surgeon, served as Médecin Aide-Major, and also as Chef d'Équipe Chirurgicale in the French Army. During four years of war he kept careful note of his observations which, together with the results of a considerable amount of experimental work, are now gathered together in the "Chapitres Choisis." The book does not pretend to be a text-book on war surgery, but it contains interesting chapters on many subjects, such as cranial lesions, shock, the treatment of wounds by auto-vaccination, gas gangrene, fractures, and the repair of bone. Though it does not contain any startling novelty, the work is interesting and unusual, owing to the inclusion in it of the results of experimental work, particularly with reference to shock and the regeneration of bone, which were designed to elucidate the clinical problems.

Though works on war surgery are not now urgently needed, this one is worth perusing, for, as M. Jacob says in the preface, it is "un beau livre."

JOURNALS.

Journal of Industrial Hygiene. London: Macmillan and Co. 3*s*. 6*d*. monthly; 21*s*. per annum.—The pages of this journal have contained in recent numbers articles referring to various branches of the wide field covered by the new science which is springing up relating to occupational preventive and curative medicine and surgery. Review of articles dealing with kindred subjects, although appearing in different numbers, will, we feel, be of more interest to our readers than reference to each issue of the journal. Three articles, for instance, appearing in the issues for February, March, and April may be dealt with in one group; they are contributed by Dr. T. M. Legge, and disclose the author's well-known erudition. His Lowell Institute lecture on the spirit of work in craft guilds throws an interesting light on

the standard of honest work and good material maintained by mediæval craftsmen, and on the organisation which existed to ensure it; trade halls and trade pride then showed a spirit which is conspicuous by its absence from modern trade unionism.

"Not until the workmen of to-day, in factory and workshop, again recapture this interest in their work, can we expect the same fine results from them. ..... The craftsman asked a good price for honest work made of sound material which would consequently last a long time. He did not try to dodge his neighbour and undersell him. The question of cheapness did not come in. Only occasionally do we read that the municipality had to interfere to regulate the price of goods because of extortion. A regular scale of charges was recognised and the skill of the craftsmen counted for what it was worth."

Dr. Legge passes from these general considerations to inquire how far industrial diseases occurred among the workers; he finds evidence of the existence of ill-health in the fact that "the craft guilds were the only friendly societies, benefit societies, and sick societies, that existed in their times." Nevertheless, although the hours of work which embraced the hours of daylight were long, work by night and on Sundays was forbidden. References in literature are few; Chaucer, it is true, represents the alchemist as suffering from plumbism.

"And wher my colour was bothe fresh and reed,
Now is it wan and of a leden hewe;
Who-so it useth, sore shal he rewe.
And of my swink yet blered is myn ye."

But the writer turns to Ramazzini for more direct evidence of diseases among craftsmen. This Italian savant at the end of the seventeenth century visited the workshops and saw there mercurial poisoning among goldsmiths, and lead poisoning among potters, painters, and artists; he also describes fibroid phthisis among stonemasons, potters, and miners of metallic ores. The writings of Ramazzini are becoming for industrial hygiene as classical as those of Hippocrates, wherein allusions may be found which can be made to fit nearly every modern instance, but being at times somewhat obscure as to their exact meaning. This famous physician appreciated the value of washing, and counselled all

"that live by sordid slovenly trades, the frequent shifting of their linen and keeping their body clean; that by that means they may prevent, as far as it is possible, the diseases that flow from filth and nastiness."

And he anticipated more recent social thought with the words—

"'Tis a sordid profit that is accompanied with the destruction of health."

Dr. Legge carries us forward nearly 150 years from this Italian physician to the English pioneer, Thackrah; he tells something of his life and work and something of the labour world as Thackrah knew it in the first half of last century. The influence of Thackrah upon the thought of his day is set forth; and we are told how he exposed the prevalence of woolsorters' disease and of high morbidity and mortality among those exposed to the inhalation of dust; and how—which marks an important epoch—he founded his deductions on statistical data. Thackrah had a sane judgment, was a keen observer and a clear writer; his work remains worthy of close attention to-day, and we thank Dr. Legge for reminding us of its importance and value.

Three other articles may be referred to together as they deal with aspects of industrial fatigue and unrest. Dr. S. Cobb, in the November number, discusses the psychological aspect and looks upon modern industrialism as "mentally insanitary." The worker has lost creative desire,

"and the only reason left for labouring is the predatory desire to possess wealth—to get paid off and to do as little work as possible for as large a reward as possible."

Hence results a life of limited happiness and restricted personal development, a life directly conducive to industrial neuropsychosis—a term which may be held to apply to the "gradually accumulating fatigue of the over-driven industrial worker," but which also embraces repressed emotional cravings. Industrial conditions are the cause of industrial unrest, and the duty lies with industry to study and remedy the evil it has brought into existence. The social economist on the one side and the medical practitioner on the other must both be called in to aid, but neither will give of his best until both meet on the common ground of psychiatry.—R. A. Spaeth, in the January issue, following up his excellent exposition of the fatigue problem which appeared in the first number of the journal, deals more particularly with the prevention of industrial fatigue. He appreciates that until the working of the human machine is more accurately understood fatigue prevention cannot become an exact science; yet prevention is the object of the whole study. He says that there is no need to wait before starting on a fatigue-prevention campaign; a great variety of working conditions, often bizarre and unnatural, can be attacked forthwith. Illumination and ventilation are indeed becoming specialised branches of engineering; but other things are neglected, such as, for instance, the provision of seats, which requires careful study. Seats are needed for use during rest pauses, for use at processes usually done standing, and for sedentary occupations; in each case chairs of different type and construction are wanted, suited to the physique of each worker and to the character of the work. Spaeth advocates the introduction of rest pauses, especially at continuous repetitive processes after careful study of the effect produced; and in order to popularise them amongst piece-workers he even suggests payment for the resting time. This suggestion, we may remind our readers, was put forward in this country by the Health of Munition Workers Committee in their Interim Report when dealing with "Incentives to Work." Spaeth next points out that classification of processes and careful selection of workers according to their individual capacities would eliminate much unnecessary fatigue and labour turnover, and he suggests lines on which selection can be made. The value of Martin's spring balance as a physical test is pointed out, and of blood pressure and pulse-frequency as a physiological test, while the use of endurance and intelligence tests are also recommended. This writer looks with disfavour on "motion study" as practised in America.

'The aim of motion study and motion elimination has been primarily *output*—i.e., increased production. ..... Whether the fatigue at the end of the day or week is greater under the old or the new method is rarely asked."

The third article appears in the March number from the pens of F. B. and L. M. Gilbreth, who dwell upon the enormous loss to the community of unnecessary fatigue. First, there is the loss in production placed at an astounding figure.

"There is also the loss in materials that are spoiled and in overhead charges caused by the unnecessarily fatigued worker. Again, there is loss due to absences caused by accident and sickness which are often the indirect results of unnecessary fatigue. Statistics show that the over-tired workers are the ones oftenest injured and oftenest absent. There is also the loss due to the lack of coöperation that comes as a result of the discontent due to over-fatigue, and the resentment due to a belief that the management has not done all it could to provide for the workers' relief from unnecessary fatigue."

The authors discuss the importance of illumination in lessening fatigue, and recommend the free use in factories of white paint on ceilings, on walls, on machinery, and throughout staircases. Plenty of light narrows the pupil of the eye and so increases the depth of focus of the eye; "the greater the depth of the focus, the less the muscles must adjust the convexity of the lens of the eye" during accommodation; thus eye-tiredness is saved. These authors also draw attention to the importance of studying seats; and claim that the average factory chair resembles a coffin, in that "the man who makes it does not require it, the man who buys it does not use it, and the man who uses it has little to say about it." The workers themselves even more than employers have to be educated in the matter of fatigue; educated to wear necessary spectacles, educated to recognise that high heels and pointed shoes are as much bad form in a factory as on the golf-links or tennis-court. Unnecessary fatigue to-day represents unnecessary waste at a time when the world cannot afford waste and requires increased production.

IN the *Bulletin de l'Académie de Médecine* for April 27th M. Arnold Netter returns to the subject of sleeping sickness, and quotes several instances to prove the theory of infection. He concludes his remarks with the following statements:—"Lethargic encephalitis is certainly contagious. The contagion is probably carried by the saliva. Because of the long persistence of the virus in the nervous centres the patient may be liable to give the infection during a long period. There are grave reasons for believing that encephalitis may be transmitted by a convalescent. There is reason for thinking that the malady may be contracted from a patient suffering from an arrested or incipient form or even from a healthy person who has been near a patient. These considerations, some proved and others probable, point to the fact that it is necessary to be cognisant of all established or merely suspected cases. Everyone in contact with these patients should be made aware of the possibility of direct or indirect infection. In the present state of things it would be difficult to enforce the isolation of patients for an indeterminate length of time where the greater number remain single cases without any precautions having been taken."—Two communications were made at the same meeting of the Académie by M. de Lapersonne and M. Achard on the Ocular Symptoms in Sleeping Sickness, and the whole subject was further discussed by Dr. Netter and Professor Widal.—The fourth communication of the meeting was made by Dr. Chauffard, who quoted many cases in proof of his contention that an attack of grippe makes the sufferer immune against further attacks during a certain period. Dr. Netter, in commenting on this communication, pointed out that while grippe influenza might confer immunity, this was not always the case with the many different forms of pseudo-grippe.—Dr. Bérard then read a paper on Operation for Goitre, in which he strongly advocated surgical treatment in such cases, especially before the setting in of complications, of which the most serious was thyroid cancer.

THE LANCET.

LONDON: SATURDAY, MAY 22, 1920.

The Joint Appeal for the Voluntary Hospitals.

WE publish to-day an appeal signed by Queen ALEXANDRA, as President of the British Red Cross Society, and by the Duke of CONNAUGHT, as Grand Prior of the Order of St. John of Jerusalem, for the continuance in peace-time of the combined work of the Society and the Order—the Red Cross and the White. We may take it for granted that most of our readers have already seen the appeal, which has been circulated widely; but appended to the appeal there is an account of a survey which has been recently conducted by the two associations to ascertain the financial position and the volume of work done by certain of the voluntary civil hospitals, and a scheme for their monetary assistance and the increase of their activities. The outline of this scheme we were able to present to our readers last week, and now on page 1128 we publish it and the survey practically in full, for they provide the justification of the appeal. They show in brief, though with many details, the pecuniary position of the 550 provincial hospitals under consideration (the hospitals of the metropolis being considered to constitute a special case), the range of their efforts, and the difficulties under which they work, both those that are permanent and those that are aggravated by existing financial stress. In this way the reasons are supplied why the large sum of one million pounds per annum is wanted for the support and development of the institutions, and in what directions the money can be used most wisely. The survey and the scheme are the work of Sir NAPIER BURNETT, and form a valuable public and medical message. Much that is said in them has been said before, but in many directions the circumstances, though well known to medical men, will not be familiar to those who are asked to subscribe. If the documents are digested, donors will understand that their aid is being sought on business grounds, while medical men will be able to answer the now too common assertion that the voluntary hospital system is doomed.

For, as we have stated more than once in our columns lately, there has been in the public mind too great a feeling that the voluntary system has broken down. The numerous appeals in the public press have been supported by statements to this exact effect, and the individual needs of certain institutions have been taken to represent generally prevailing conditions. Hence the public has received an impression of helplessness—a feeling that it would serve no purpose to bolster up a system which was falling into decay. And this feeling has been particularly unfortunate because, at the very time when it was producing its greatest effect on the public, there were proceeding in two directions considered inquiries into all the facts from which it was believed by medical men the contrary view would emerge. Those who were aware of the part that was being played by the voluntary hospitals, and of the immense difficulties that would attend any wholesale suspension of their work in favour of a vast State-supported or rate-supported scheme, felt certain that both the survey of the Joint Council of the Red and White Crosses, and the Report, now imminent, from the Consultative Medical and Allied Council of the Ministry of Health would show that for the health work of the visible future the voluntary hospitals were absolutely essential. That their scope should be enlarged, their finances set in order, and their shares in a grand general plan allotted—these things were fully recognised, but the voluntary hospitals must remain, for the time being, the institutions around which and through which the further developments in the care of national health take place.

The Report of the Consultative Medical Council will appear in all probability next week, when the provincial health service outlined by Sir NAPIER BURNETT will be found to coincide in a valuable manner with the great and inclusive health scheme set up by the Council as the ideal towards which the Ministry of Health might well work. If the well-reasoned appeal of Queen ALEXANDRA and the Duke of CONNAUGHT, supported by Sir NAPIER BURNETT'S account of the survey of the provincial hospital should result in the finding of an annual income of a million to supplement the funds of the provincial hospitals, a practical step will have been taken to carry out the recommendations of the Medical Consultative Council. The hospital survey is only a first instalment, but it indicates in detail where help is urgently required, and we would draw special attention to two features which should appeal to all business men. Under the scheme it is suggested that there should be coöperative buying of hospital commodities, and the British Red Cross Society proposes to use its large storage accommodation in London, where necessary articles could be kept in bulk. This would mean both buying in bulk, and buying on analysis and on sample, and also in most advantageous markets. A second great point in the scheme is the recognition of the value of convalescent hospitals in two directions—early and late. The public and the medical profession know full well the value of the convalescent home, both as making space in hospitals for more acute cases and as giving to those who have passed from that acute stage a more reasonable chance of accelerated health; but the idea that convalescent homes should be established where early cases could be seen and prevented from swelling later the hospital population is, we believe, a new feature in hospital work.

Left-handedness and Stammering.

IN the *Times* Educational Supplement of May 6th some interesting experiments on children are described by Mr. A. E. LEWIS, headmaster of the Lingfield Colony Special Schools. These children had remained stationary for from two to four years and showed an average mental retardation (by the Binet-Simon tests) of five or six years. They could not be taught to write, "they could not recognise letters by sound, and they had no idea of number or value." Mr. LEWIS proceeded to teach them to use the left hand in blackboard drawing—at first from the shoulder, and later, when definite progress had begun, from the elbow and wrist, with a smaller scale of movement. All the actions taught were mirror movements—i.e., the *reverse* of the usual right-hand movements. Besides the alphabet,

they were trained in the visual memory of pictures and objects, and in their pictorial expression. By the end of the third month over half the class could connect sound with letter, the symbols, of course, being in mirror-writing. They now began to practise (*unreversed*, that is) right-hand movements with the left hand. But this soon resulted in the appearance of a pronounced stammer. The stammer only appeared when the left hand was made to perform movements in the same directions as those normally performed by the right. Left-handed work was therefore at once replaced by practice in ambidexterity. The blackboard was again employed for large-scale drawing from the shoulder, made by the two arms simultaneously, the left carrying out the mirrored movements of the right. The children were also trained in other bi-manual exercises, e.g., in throwing balls and in swinging light clubs. The great fault at first was a want of uniformity on the two sides, the left-sided movements being dominant, and the right subsidiary. Gradually, both hands began to acquire skill and steadiness, the speech defects disappeared, the Binet-Simon tests showed steady mental improvement, and the children could soon write simple letters and syllables from copy and dictation.

In considering the significance of Mr. LEWIS'S communication, certain other results must be borne in mind:—

(i.) At the British Psychological Society's meeting on May 12th, Mr. HUGH GORDON showed that the percentage of left-handed children is nearly three times as great among the mentally defective as among normal children.

(ii.) At least two previous investigators have independently found that stammering is commoner among left-handed children, when taught to become right-handed writers, than among other groups of children.

(iii.) From some as yet unpublished experiments of Miss LUCY FILDES, Cambridge Research Student to the Board of Control, it appears that children who have been pronounced "mind-blind" can be successfully taught their letters, provided that they are instructed appropriately; under such conditions they can relatively easily learn a strange (e.g., the Greek) alphabet.

(iv.) There is a transfer in the practice effects acquired on one side of the body to the other.

Mr. LEWIS supposes that his results are dependent on the "opening up of additional centres in the brain." "Why," he asks, "should we not, by making the child left-sided, render possible the development of other centres on the right side of the brain as well" as those on the left side? But in the light of the additional facts just quoted other and far more likely explanations are possible. In the first place, since left-handedness is, according to Mr. GORDON, especially frequent (18 per cent.) among mental defectives, it is hardly surprising that education of the left hand, even though so long delayed, should in left-handed mentally retarded children have met with motor success. This factor, however, is of relatively slight importance compared with the following. Both in the right-handed and in the left-handed of such children, their backwardness of intellect had become considerably less pronounced than it was when they were first taught to use the right hand. Thanks to Mr. LEWIS'S enthusiasm, they were trained in left-handed movements by the most modern and improved methods placed in the hands of most expert and interested teachers, whereas their early training with the right hand had probably occurred in a normal school, and was foredoomed to failure. From Miss FILDES'S already mentioned observations such early failure appears, in the case of mentally defective children, to be an effective barrier to later progress. It is only when special methods are subsequently employed in the right way that interest can again be awakened and that the enormously powerful suggestions, once acquired, of incompetence and certain failure can be frustrated. Even then the ill-effects may perhaps be perpetuated, as in Mr. LEWIS'S children, by far slower improvement on the side affected.

Further, the stammering on attempting to reverse previously acquired movements of the left hand appears to be related to that already known to tend to occur when in the left-handed the right hand is trained, in reversed movements, to replace the left. The latter case is not difficult to explain, as it involves a call on the cerebral hemisphere contralateral to that on which the speech centres are being predominantly developed, and so upsets the close anatomical association normally existing between hand and speech movement centres. But, according to Mr. LEWIS'S results, the learning of reversed movements on the *same* side as that on which the original movements were practised is apt, at all events in mentally defective children, to disturb the speech mechanism. If we can safely eliminate the effects of the previous futile training with the right hand, it would appear that the incoördination produced by learning to reverse acquired movement, whether ipsi- or contra-laterally, affects in some way not yet understood, the coördination of speech among the mentally defective. This is a matter clearly needing and readily capable of further investigation. Meanwhile we may conclude that Mr. LEWIS'S promising results are more easily explained by the psychological effects of enthusiasm, suggestion, and improved methods of training than by the mere "opening up of additional" motor cortical centres in the opposite hemisphere.

The Tuberculosis Rally.

LAST week and next week include at least three important meetings of medical men and women specially interested in tuberculosis, its prevention, and its treatment. And it is well that this should be so, for a certain hopelessness is becoming apparent among the younger generation regarding the efficacy of our present efforts, in face of which it is no use simply to reiterate the claim that hygienic-dietetic treatment would have been a sovran remedy had it been carried out properly. Gallant persons, young enough to look coldly and without personal bias upon the results of hygiene and diet applied as curatives, are willing to concede their value as preventives. But when they are told, by those who think they know, that in sanatoriums greatly enlarged in size and number, with more prolonged treatment and more adequate after-treatment, is to be found the one and only solution of the tuberculosis problem, they are apt to show incredulity. Institutional treatment, ineffective in the spacious days before the war when the land flowed with milk and cod-liver oil, is likely to remain ineffective in the straits and subterfuges of an impoverished generation. The housing question suggests an analogy. In 1914 it seemed capable of solution on 1914 principles; nothing is clear in 1920 except the impracticability of such a solution.

Something of this was doubtless in the minds of the promoters of the Leeds Congress of the Tuberculosis Society on May 13th and 14th, for Dr. H. DE CARLE WOODCOCK, who presided, took as his theme the necessity for research and coördination in the eradication of tuberculosis, leading up to the resolution proposed by Professor BENJAMIN MOORE, that—

"In the opinion of this Congress a conference should take place between those actively engaged in tuberculosis work and those engaged in research work, to arrange the lines on which future investigation should be conducted and the manner in which records should be kept and collated and the results circulated."

Were all the hundreds of municipal officers at present occupied with the clinical study of tuberculosis imbued—as many of them already are—with the spirit of research, and seized of the best lines on which it should be conducted, the tuberculosis problem would soon yield up some of its closely-guarded and ramifying secrets. Investigations conducted for the Medical Research Council, such as those into the incidence of phthisis in relation to occupation, especially munition-making, the mortality after sanatorium treatment, and BROWNLEE'S exhaustive search for a lead from epidemiological data, should form the basic knowledge of the tuberculosis service, and much more might be done to bring research and routine into fruitful partnership. Now that the Research Council is set free from much of its urgent war work the claims of the biggest peace-time killer and maimer of human lives become very insistent.

Leisure of mind is necessary for research of whatever kind, and it is only a happy and satisfied mind which is leisurely. The assertion of its rightful position has been rather an absorbing task for the youthful tuberculosis service, but, now that the service has arrived, the tuberculosis officer, using the term in a wide sense, is free to develop many points of contact. The meeting, called for May 28th, at which Dr. F. N. KAY MENZIES will preside, is to form a tubercle group within the general society of health officers. The relation of tuberculosis to municipal hygiene and administration is obviously as close as that of measles or venereal control or infant welfare, and we assume that the general health officers, who now largely preponderate in the counsels of the Society of Medical Officers of Health, are prepared to welcome a fuller representation of special departments. The newly-formed Society of Superintendents of Tuberculosis Institutions, which held its first general meeting on May 17th, devoted its attention at once to the big question of the ventilation and heating of tuberculosis institutions, the debate being opened by Dr. LEONARD HILL. There is, we have no doubt, enough interest in the subject of tuberculosis and in its votaries to justify several branches of active work. The central link which binds and co-ordinates is now and will increasingly be—Research.

MINISTRY OF HEALTH: NEW MEDICAL APPOINTMENTS.—In pursuance of the expressed decision of the Minister of Health to enlarge the scope of the medical side of the Ministry, especially in connexion with tuberculosis, general sanitation and epidemiology, venereal disease, international health work, infectious disease, and the administrative work of port sanitary authorities, Dr. Addison has made the following additional appointments to the medical staff of the Ministry: Drs. James Fairley, J. Alison Glover, F. W. Higgs, A. A. Jubb, R. Bruce Low (junior), A. T. McWhirter, A. C. Parsons, G. Raffan, A. B. Smallman, P. G. Stock, E. L. Sturdee, F. N. White, D. J. Williamson, W. P. Yetts.

Annotations.

"Ne quid nimis."

THE INAUGURATION OF THE ASSOCIATION OF SURGEONS.

AT the Royal College of Surgeons of England last week Sir John Bland-Sutton, as president of the newly inaugurated Association of Surgeons of Great Britain and Ireland, delivered an address in which, with erudition, humour, and biblical simplicity, he explained the need for the new organisation and the problems which it has before it. As our readers will remember, the Association originated with Sir Berkeley Moynihan, who suggested its formation to Sir Rickman Godlee in 1914. War intervened, but its cessation having allowed the suspended activities to be resumed, the Association has come into being, and its rules and programme have been laid down. The members, who are all engaged in the active practice of surgery or surgical research, will meet at stated intervals and at appropriate centres for private debate. The proceedings will later be reported in the *British Journal of Surgery*, which becomes the official organ of the Association; but the absence of reporters from the actual sessions will ensure that unfinished work will not be prematurely published and that the debates will not lose the value that is born of freedom of speech. Sir John Bland-Sutton gave the movement a characteristic start by a dinner, which he gave on the evening of Thursday, May 13th, at Claridge's Hotel. The dinner was an act of private hospitality, most hospitably conceived; moreover, as falling under the proceedings of the new Association, it ought, we suppose, to escape publicity. But reference must be made to a short exposition by Sir Berkeley Moynihan of what might be expected from the Association if the spirit in which it had been born continued to infuse its proceedings. He pointed out that the motive for starting the Association, which had received great encouragement from Sir Rickman Godlee and his presidential successor at the Royal College of Surgeons of England, Sir George Makins, was to advance by concerted effort the science and art of surgery in a country where so much of the original work in surgery had been laid down. Surgery, said Sir Berkeley Moynihan, cannot well be a gregarious profession, but in England it is too much concerned with individual and local efforts. It is the intention of the Association to turn the deep currents into broader channels. He concluded that so far as material things—rules and membership—were concerned, the Association was now well fashioned, all that was required being that the ideals which had led to its institution should draw continued vitality from the enthusiasm of the members. We are confident that the new Association will be of the greatest value to progressive surgery.

A NATIONAL COLLECTION OF TYPE CULTURES.

IN our issue of May 15th we published a special article on the proposal of the Medical Research Council to establish a national collection of type cultures. The importance of the subject is worth insisting upon. A complete collection of authentic cultures of bacteria would undoubtedly be of immense value to scientific workers. It would be easy to show how seriously the progress

of bacteriology has been handicapped by the absence of such a collection. Consider, for example, the amount of labour that was expended during the war in unravelling the history of Pasteur's *Vibrion septique* and Koch's *B. œdematis maligni*. In the end it was shown that the organisms were identical, but the absence of authentic cultures of the original organisms studied by Koch and Pasteur compelled bacteriologists interested in gas gangrene to expend a great deal of energy and time in settling a point which might have been easily solved under the conditions the Medical Research Council hopes to establish. Some months ago we pointed to the difficulties under which bacteriologists laboured during the war in diagnosing bacillary dysentery. Professor F. W. Andrewes and Dr. A. C. Inman have recently published an account of their work on the Flexner group of dysentery bacilli in which they have isolated five strains of *B. dysenteriæ* (Flexner). These strains, and consequently the corresponding agglutinating sera, were not available during war, though Kruse, in 1912, had isolated the organisms. Such stories of the failure of individualism in science could be told *ad nauseam*. We simply wish to urge that we have now reached the stage at which organised coöperation must come into play. It is, indeed, fortunate that the Medical Research Council has decided to organise this department of our common effort and put it on a sound footing. The Council has done well to secure the services of Dr. J. C. G. Ledingham and his colleagues. But we should like to add that the hearty coöperation of all bacteriologists is essential if we are to enjoy in the future the full advantages of the scheme.

MAN AND DISEASE.

THE tendency, already manifest before the war, to seek vitalistic instead of merely mechanistic interpretations of biological facts, and to insist on the importance of *Bildung* rather than of *Gestalt*, has lately become more marked. At the same time the scientific importance and educative value of the neo-Lamarckian conceptions have been more widely realised, and the relation to medicine of these and other subjects of inquiry, biological and philosophical, has received greater attention. Dr. F. G. Crookshank recently delivered, in the Pathological Theatre at Cambridge, three lectures entitled "Man and Disease," under the auspices of the Chadwick Trust, and took occasion to review some of these recent trends of thought to which we have made allusion, discussing their bearing on modern notions of disease and the resulting schemes for its prevention or alleviation.

In the first lecture of the series the origins of our conceptions of disease and diseases was sketched, and it was pointed out that two popular and professional schools of thought have always existed—the one, chiefly interested in external agencies, actual or suppositious, and now represented by those "realists" (in the scholastic sense) who regard diseases as attacking "entities," to be "stamped out"; and the other, more content with observing what is actually wrong with the sufferer (and how and why), and more inclined to throw the responsibility for ill-health upon those who, for themselves or their future offspring, neglect the personal effort necessary to secure due adjustment and to practise right living. Neither view has absolute value, but the popularity of the former is largely responsible for many alluring "campaigns" against this, that, or the other "disease"; and neglect of the latter tends to involve an increasing personal and racial helplessness.

In the second lecture a plea was entered for a return to the older "functional" and "synthetic" standpoint in respect of biology and that department of biology we call medicine, for materialistic and disintegrative methods of thought have failed to elucidate as completely as was once hoped the problems at issue. A vitalistic conception of disease was declared to be perfectly compatible with the teachings of Roux, the biologist, and Butler, the philosopher. Many converging lines of thought, indeed, appear to warrant us in considering the organic changes in disease as expressions of the disordered "inner" vegetative functions of cells, tissues, and organs rather than as imposed from without, or as Galenical "substances" lying behind the Galenical "shadow" of the symptoms.

In the concluding lecture the community was regarded as an organisation-complex, in the same manner as the "organism" is found to be a complex of lesser units, and they of others still simpler. Epidemiology is then concerned with disorders of health of collectivities and not of mere aggregations of individuals, and is inseparable in its functions from sociology and the science of government. Moreover, most forms of epidemic disease are definitely associated with social, economic, and allied conditions, while the greater pestilences may ultimately depend upon factors affecting all forms of animal and vegetable life upon the planet and provoking the harmful activity of the minuter parasites. The true basis of communal health, as of personal health, is to be found in the building up of the sense of responsibility of the "unit" concerned in each case, and in the exercise of effort and endeavour, in the interest of the still greater "complexes" of which each unit is a component; and in this connexion it is impossible to consider the health of mankind without reference to the prevention of international warfare—the greatest mundane cause of disordered health. In conclusion, it was pointed out how very clearly recent lines of thought tend to reinforce the wholesome, vigorous, and broad views and policies of Chadwick and his associates, who refused to entertain the narrower and particularist ideas so popular, in respect of "diseases," during the period now drawing to a close.

Sir Clifford Allbutt, who presided at the last, and Sir G. Sims Woodhead, who took the chair at the second lecture, both spoke of the advantages of taking a broad and comprehensive view of the nature of disease and the many factors involved in its production, as well as of the necessity for emphasising the importance of effort, and the sense of personal and communal responsibility in the prevention of disease.

EXTERMINATING YELLOW FEVER.

IN recent years there has been, without doubt, a considerable reduction in the amount of yellow fever occurring in the regions previously notorious for its ravages and known as endemic centres of the disease. This decrease in the incidence of yellow fever has been due in part to the application of the measures recommended by the American Commission which reported in 1900. One of the chief of these measures was the destruction of the stegomyia mosquito, the proven vector of the infection to man. Among the places which benefited as a result of this preventive action were Habana, Rio de Janeiro, and Panama, all well known at one time as active diffusing centres of yellow fever. Not only did these and other places directly benefit themselves by the anti-stegomyia measures, but they ceased to distribute the infection through shipping to other ports of South and Central America, and in this way caused a diminished incidence of the malady. The Yellow Fever Committee appointed by the Indian Government, to which

attention was recently called in our Notes from India, suggests the desirability of keeping in personal touch with the endemic centres of disease elsewhere. It cannot be denied, however, that some other towns than the three named above, formerly endemic centres of yellow fever, have also shown of late years a remarkable decrease, amounting in some instances to an entire disappearance of the disease, notwithstanding that no action at all had been taken to destroy stegomyiæ, and notwithstanding that these insects continued to multiply in enormous numbers. In such cases the decrease of the malady has been due to what is termed "spontaneous elimination." In the recently issued number of the *Annals of Tropical Medicine and Parasitology*, Vol. XIII., No. 4, Assistant Surgeon-General H. R. Carter, of the U.S. Public Health Service, discusses this subject and offers some explanation of the spontaneous elimination of yellow fever from its former endemic centres. Among the examples he mentions as having been freed from yellow fever are some of the smaller ports of Cuba, also La Guaira and Maracaibo in Venezuela, Cartagena in Columbia, and Corinto in Nicaragua, all of which in the past had an evil reputation as regards the disease. He points out that for the spread of yellow fever in a community three factors are needed—namely: (1) the presence of a person or persons in the early stages of a yellow fever attack—i.e., the carriers of the infection; (2) a sufficient number of active stegomyia, the vectors of the disease; and (3) the presence of susceptible persons. These three factors must be present together at the same time. The stegomyia gets infected by biting the carrier in the early days of his attack, and this mosquito after a time is able to convey yellow fever parasites to the susceptible person—the non-immune—whom it bites. The stegomyia remains infective during the rest of its short life, which Dr. Carter estimates will terminate at about ten days after its infection. If there are no immunes present to be bitten, and thus renew the stock of virus from which fresh stegomyiæ can become infected, the infection must die out. Susceptible persons are therefore necessary for the continuance of yellow fever in a community. Such people must not only be present, but must be present under certain conditions of time and place with relation to stegomyiæ infected from other persons with yellow fever. If in a community there are no susceptible persons fulfilling these conditions, yellow fever will disappear, and if, as Dr. Carter believes, one attack of this disease confers permanent immunity, such a community will have in time no people left susceptible to the malady, unless there is an introduction of non-immunes from without. Yellow fever, therefore, would in this way disappear, and as soon as the already infected mosquitoes died off the yellow fever parasites would disappear and the community would be free of the infection. An immigration of susceptible people, then, is necessary for the continuation of yellow fever in a community; if this immigration fails or fails to fulfil certain conditions the disease disappears. This Dr. Carter terms "the elimination of yellow fever by failure of the human host." The towns which have been freed from the malady in this way are generally small or of moderate size, out of the way of commerce, and receiving little immigration of susceptible persons. It has been noticed that other towns have suffered less and less from yellow fever as their prosperity declined and the arrivals of traders and others decreased. The decline of the sugar industry in some of the West Indian islands was followed by a great diminution of yellow fever. The withdrawal of European garrisons and fleets from the West Indies and Caribbean Sea led to a great decrease in the amount of yellow fever occurring in these regions. Even the Great War has helped by stopping European immigration to South and Central America; and the consequent commercial depression by causing lessened travel has also contributed towards this end by cutting off the supply of susceptible persons. Yellow fever, therefore, in recent years has been greatly reduced, first of all by the application of the scientific method of stegomyia destruction, especially in the larger towns, and secondly by "spontaneous elimination by failure of the human host" in the smaller and more remote endemic centres. There are, of course, other agencies under modern conditions also at work tending to diminish the spread of yellow fever. In conclusion, Dr. Carter believes that yellow fever may in time be exterminated altogether. Many of the higher forms of life, he says, have permanently disappeared from the earth, some of them even in our own times, and there is no reason why concerted attempts should not be made, perhaps, on an international basis, to exterminate a micro-organism such as that of yellow fever, which is pathogenic to man and which in the past has taken a heavy toll of human life. We hope that Dr. Carter's contentions will receive the attention of the International Health Bureau.

INTERNATIONAL PUBLIC HEALTH NURSING.

ORGANISED public health is the greatest immediate need of the Old World, and the organisers are constantly met with the difficulty of finding trained personnel. One of the first objectives of the League of Red Cross Societies has therefore been to seek out in all countries young women to be trained both in sick nursing and in public health work, to assist them in obtaining the necessary training, and to return them to their own countries as pioneers in public health work. Eventually the League advocates the establishment of a model training school or schools for public health nursing; but, pending this, it has been decided to make use of existing facilities, and King's College for Women, London, has been selected as the institution at which training will be given in public health nursing to the holders of the League's scholarships. The course of training will be conducted in the Household and Social Science Department of the College, beginning with the academic year 1920–21. Acting on the suggestion of Miss Alice Fitzgerald, chief of the League's Department of Nursing, and formerly of the Johns Hopkins Hospital, Baltimore, ten scholarships have been established, each of the value of $1000, to cover tuition and living expenses through the full college term of 10 months. Travelling expenses to and from London will be paid to the holders of the scholarships. Additional scholarships are to be established by National Red Cross Societies, and it is hoped that the first group of nurses to take the London training will number at least 20. The students will live in one of the residences attached to King's College under the supervision of Miss Gertrude Cowlin, assistant chief of the Department of

Nursing of the League of Red Cross Societies, and formerly organising secretary of the College of Nursing. The course of training will include physiology, bacteriology, household science, hygiene, and elementary social economics. The practical course will cover child welfare school clinics, tuberculosis, rural work, and district nursing. The students will also have the opportunity of visiting centres of social work. It is felt by the League that a year's contact with representatives of 20 other nations should help the pupils to a cosmopolitan outlook. After their return to their own countries, at the end of the course, the nurses will be expected to maintain communication with the League of Red Cross Societies, and a plan is under consideration for travelling field secretaries to assist them in becoming pioneers of public health nursing.

OPHTHALMOLOGY IN THE FINAL PASS EXAMINATION.

THE address of the president of the Ophthalmological Society, reported in our issue of May 15th, should go some way towards convincing the General Medical Council of the value of the reform for which he pleaded, namely, that ophthalmology should be included as a necessary part of the final pass examination and that the examination in this subject should be conducted by ophthalmic surgeons. To be effective it must include the clinical examination of cases both external and ophthalmoscopic. This does not mean that it is considered necessary for the general practitioner to have the detailed knowledge of the subject which is expected of the specialist, but rather that he should be able to recognise promptly such injuries and diseases of the eye as he is likely to meet with in general practice, and for which prompt treatment is essential, and in the second place, that he should be sufficiently at home with the ophthalmoscope to identify those conditions of the fundus which commonly constitute symptoms of general disease, some of these being essential to diagnosis. To the objection that such an examination would overload the curriculum, Mr. Story put forward his own experience as an examiner for over 30 years in Ireland, where the clinical examination that he advocates has been in force with excellent results. To the other objection that if an examination in ophthalmology is instituted other special branches of surgery will soon claim a similar privilege, he replied by pointing out that the importance of ocular signs and symptoms in serious constitutional diseases is much greater than can be assigned to any of the other organs usually taken up as specialties.

THE METABOLISM AND EXCRETION OF QUININE.

THE War Office has reprinted, in separate form, that portion of its recently-issued volume of "Observations on Malaria" which deals with the excretion of quinine. This subject is reported on by Dr. M. Nierenstein, lecturer on bio-chemistry in the University of Bristol, who was working during the war under Sir Ronald Ross at the malaria laboratory of the 4th London General Hospital. Dr. Nierenstein's first task was to compare the reliability of the various tests for quinine in urine. The most delicate of the qualitative methods is, he finds, that devised in 1853 by Herapath, of Bristol, and recently elaborated by Ramsden and Lipkin, of Liverpool. A number of quantitative methods was also tested critically, and that of Barratt and Yorke selected as being most reliable. Using this technique, Dr. Nierenstein made 1668 estimations of the excretion of quinine, and it is on this basis that he draws his conclusions. From these it appears that only about half the quinine administered to the human subject it excreted as such in the urine. The remainder, is seems, is metabolised, and two disintegration products, quitinine and hæmoquinic acid, were found in the urine. This latter was almost constantly present in the urine of blackwater fever cases, and in much larger quantities than in the urine of ordinary malarial patients. It was found that variation in the dosage from 20 to 70 gr. daily produced little or no variation in the proportion of quinine excreted unchanged, but that a dosage of over 30 gr. per diem, which raised the unchanged quinine in the urine above 11 gr. per litre, was apt to cause albuminuria. Variations in the preparations used and in the methods of administration made no great difference to the proportion excreted unchanged. Dr. Nierenstein's general statements are supported by a great wealth of detail in his report, which deserves close study.

PLEURAL EFFUSION WITH DEPRESSION OF THE DIAPHRAGM PRODUCING AN ABDOMINAL TUMOUR.

IN the *American Journal of the Medical Sciences* for March Dr. David Riesman has described a very rare result of pleural effusion—depression of the diaphragm producing an abdominal tumour. He first encountered this condition at a necropsy. On opening the abdomen he found in the left upper quadrant a large, smooth, tense tumour, which proved to be a bag made by the diaphragm turned inside out and filled with pleural fluid. Subsequently he has seen the condition twice, in both cases clinically.

In one case the patient, a widow, aged 77 years, came under observation in April, 1918. For years she had suffered from diabetes mellitus and chronic nephritis with moderate hypertension. There were diabetic cataract and retinal hæmorrhages. The heart was slightly enlarged, there was a soft systolic murmur, and the legs were somewhat œdematous. The urine contained sugar up to 3·2 per cent., and albumin from traces up to 2·8 g. per litre. The quantity was usually about 1500 c.cm. and the sp. gr. varied from 1007 to 1013. Unlike most cases of coexisting nephritis and diabetes, the sugar did not vary in inverse proportion to the albumin. Under treatment she improved. In June, 1919, she was seized with acute indigestion, characterised by abdominal pain radiating to the back, nausea, vomiting, and slight diarrhœa. Within a few days she began to suffer from dyspnœa. On examination the lips were somewhat cyanosed and the pulse rapid, but there was no fever. The upper left half of the abdomen was occupied by a tense rounded, slightly uneven, somewhat tender mass ; it extended forward to the mid-clavicular line and downwards to the level of the umbilicus. The left chest was visibly distended and enlarged. The percussion note was flat over the whole left chest. No heart sounds could be heard there ; the apex beat was just within the right nipple line in the fifth interspace. Bronchial breathing and bronchophony were heard over the left chest. Dr. Riesman concluded that the abdominal tumour was the inverted diaphragm containing pleural fluid ; this was confirmed by paracentesis. After slowly drawing off 5 pints of fluid, the tumour could no longer be felt. Fearing pulmonary œdema, Dr. Riesman remained with the patient. In the first half hour she was comfortable and greatly relieved. Then suddenly the lungs filled with fluid,

loud bubbling râles could be heard everywhere, and the breathing became rattling and terribly laboured. A violent cough, which brought up little fluid, added to the distress. The face became purple, the skin cold and clammy, and death seemed imminent. A hypodermic injection of morphine and atropine had no effect. Dry cups were applied to the back and, as if by magic, every râle disappeared. After a proper interval the cups were removed and the œdema immediately returned, but it was slight and caused little distress. From that time improvement was rapid. When seen again in the latter part of July a considerable accumulation of fluid had taken place, but the abdominal tumour was smaller than before. Paracentesis was again performed, and the tumour vanished. She was in good condition at the time of the report.

In most of the text-books depression of the diaphragm as a result of pleural effusion is not mentioned. However, Wilson Fox, in his monumental work, says: "When the effusion is large the diaphragm may pass below the ribs, and may there in some cases be felt as a tumour." The condition is a mechanical result of great intrapleural pressure. The tumour is important in the differential diagnosis of abdominal masses. If the chest condition be overlooked or not correlated with the tumour error may arise. The tumour has a peculiar bulky feel, is tender, does not move with respiration, has the shape neither of the spleen nor kidney, and appears to have a deep attachment. Apart from paracentesis, X ray examination is probably the best means of diagnosis. The albuminous expectoration following paracentesis Dr. Riesman has ascribed to "congestion by recoil." It is very alarming and sometimes fatal. He has usually found that a hypodermic injection of morphine and atropine gives speedy relief, but as in the case related, it may fail. The remarkable results of dry cupping must be due to some reflex nervous influence. Dr. Riesman believes dry cupping to be a good measure in all forms of acute pulmonary œdema, whether due to tapping or other causes.

HOURS OF LABOUR.

EVERY social student will recall the struggles of Oastler, Owen, Shaftesbury, and Cobbett in the first halt of the nineteenth century which culminated in the Ten Hours Act, and the way in which that Act had to be strengthened in order to prevent the "relay system," under which the same person was illegally employed throughout two succeeding shifts. His thoughts will receive a sudden jolt when he notes that the Home Secretary has recently introduced a Bill permitting women and young persons to be employed in eight-hour shifts between 6 A.M. and 10 P.M. The reformers of the nineteenth century would consider this permission tantamount to encouraging the relay system again; but times have changed, and what was necessary to protect industry against itself in 1850 has now become an obsolete statute standing in the way of further advance. The Ten Hours Act, passed to ensure that the human machine was not worked more than ten hours a day, limited the working of the inanimate machine to the same period; but modern investigations have so established the economic folly of over-working humanity that the inanimate machine can be safely allowed to work for longer hours. This alteration in the law may pass unnoted, yet it marks a change of the utmost importance to the productivity of industry and to the health of the working-classes. It is, in effect, an Eight Hour Act; for although it applies only to women and young persons, many industries so depend on the work of these protected persons that their hours decide the hours of adult male labour. The Ten Hour Act in itself was an instance of the man gaining advantages behind the woman; and even if legislation was not under consideration for establishing a general eight-hour day, the statute now under contemplation would go far to establish this limit for industrial work. Lord Leverhulme has advanced the proposition that the object to-day should be, so far as hours of labour are concerned, to sweat the machine, not the worker. Machines, he points out, should be worked to their utmost while they are still of the latest pattern, and then give way to improvements. Otherwise industry becomes clogged with effete plant, and is less productive. His proposal for six-hour shifts cannot be fitted into the new statute; nevertheless, it marks an important advance. When full advantage is taken of the permission it gives, over-fatigue, and what arises from it, social unrest and ill-being, should be diminished among the industrial classes.

THE next session of the General Medical Council will commence at 2 P.M. on Tuesday, June 1st, when the President, Sir Donald MacAlister, will take the chair and give an address.

Mr. Norman G. Bennett has been appointed a member of the General Medical Council, on the nomination of the Privy Council, in succession to Sir Charles S. Tomes, whose term of office came to an end on May 20th.

A LIMITED number of commissions in the Regular Royal Army Medical Corps are being offered to officers who are at present serving in the army or who have held commissioned rank during the war. The conditions of service will be found fully stated on p. 1137.

WE remind our readers of the post-graduate course of study in the principles of balneology to be held at Bath between June 7th and 19th. This is the first serious attempt in this country to make extended use for teaching purposes of all the resources of a famous spa. Accommodation will be arranged for those attending, the number being strictly limited. The fee for the whole course is £5 5s., and application for tickets should be made to the Secretary of the Fellowship of Medicine, 1, Wimpole-street, London, W. 1.

THE dinner in celebration of the services of the Royal Army Medical Corps and the eminent civilians attached to it during the recent war will take place at the Connaught Rooms on Tuesday, June 8th. Lieutenant-General Sir Alfred Keogh, G.C.B., G.C.V.O., will be the chief guest, and among those who have accepted invitations to be present as Commanders of Armies are Field-Marshal Viscount French, Field-Marshal Earl Haig, Generals Lord Horne, Lord Rawlinson, Sir Ian Hamilton, and Sir Archibald Murray. The Right Hon. Winston Churchill and other members of the Army Council will be present. Some 40 hosts will preside at the different tables, the committee being Lord Derby, Lord Midleton, Lord Edmund Talbot, General Seely, Right Hon. H. J. Tennant, and Colonel Sir Edward Ward, to whom all communications should be addressed at 10, Grosvenor-street, London, W. 1.

A RED CROSS APPEAL.

THE British Red Cross Society and the Order of St. John of Jerusalem in England have issued through their joint council, of which Sir Arthur Stanley is the chairman, the following forcible appeal to the public to maintain for purposes of peace the magnificent support which was forthcoming during the war. The appeal, which is signed by H.M. Queen Alexandra as President of the British Red Cross Society, and the Duke of Connaught as Grand Prior of the Order of St. John, runs as follows:—

On the outbreak of war in 1914 there were two corporations authorised to engage in relief work among the sick and wounded men of His Majesty's Forces—viz., the British Red Cross Society and the Order of St. John of Jerusalem. These two bodies worked independently, but quickly came to the conclusion that everything must be done to coördinate their activities and to avoid waste and overlapping, and that to this end it was expedient to "pool" their funds and their efforts. A Joint War Committee was formed, together with a Joint Finance Committee, and it is under these two Committees that the voluntary work of relieving the sufferings of the sick and wounded men of His Majesty's Forces has been carried out during the past six years.

During that period a vast number of workers, both men and women, throughout the whole Empire, gave unwearying and devoted service to the cause, and it was natural that, when peace came, there should be a general feeling that an organisation such as this, founded on the voluntary efforts of those whose object was the relief of suffering and distress, should not be disbanded or allowed to disappear.

Moreover, there is still the aftermath of war to be dealt with. The Joint War Committee has been engaged since the armistice in carrying on certain of its war departments which deal with work that must continue for some time yet to come, such as the care of the sick and wounded men of His Majesty's Forces, whether still on the active list or demobilised; such care as may still be necessary for those who have been prisoners of war; assistance to orthopædic clinics and curative posts for the treatment of pensioners; home service ambulance organisation; Red Cross and St. John war and peace library.

There are also other branches of work which can usefully be undertaken in time of peace by the Order of St. John and the British Red Cross Society, such as the care of those suffering from tuberculosis, having regard in the first place to sailors and soldiers, whether they have contracted the disease on active service or not; assistance, financial and otherwise, to the voluntary civil hospitals, in view of the strain put upon these hospitals by the war; work parties to provide the necessary garments, &c., for hospitals and health institutions; child welfare work; assistance where required in all branches of nursing, health and welfare work, ancillary to the Ministry of Health.

The two corporations were anxious that these various branches of work should be carried on, and felt that for this purpose a governing body should be set up in place of the Joint War Committee, which had been created only for work in time of war. They have, therefore, by a formal agreement, established a Joint Council, on which both bodies have equal representation. This Council possesses under the old Charter of the Order of St. John and the newly extended Charter of the British Red Cross Society full power to act in all matters connected with "the improvement of health, the prevention of disease, and the mitigation of suffering throughout the world." (Extract from Article XXV. of the Covenant of the League of Nations.)

The Joint Council has now begun its work, and makes an earnest appeal to the public for a continuance of that great and munificent support which carried the Joint War Committee through the years of war. During those years the sick and wounded men of His Majesty's Forces learnt to look upon the Red Cross as an emblem, not only of help and comfort, but also of the devotion of the British people for the men who were fighting in Britain's cause. It is our earnest hope that those who, in peace time, are in suffering or distress, will learn in the same way to look to the White Cross of St. John and the Red Cross for comfort and relief, and will feel, when helped by the Order of St. John and the British Red Cross Society, that they are not receiving anything in the nature of charity, but only the just and proper tribute from those who are enjoying health and strength to their fellow men and women who are less fortunate than themselves.

For some branches of the work mentioned above—those in the first category—the Joint War Committee will continue to provide the necessary funds, either wholly or in part, for some time to come, but for all the other work of the Joint Council money is needed at once.

The greater the support that we receive from the public the better the work that we can do, and the more promptly we receive that support the sooner we can start our mission of healing and comfort. That is why we put forward this appeal, confident in the strength of our cause and in the generosity of the public that has never failed us yet.

Donations and subscriptions should be sent to the Joint Council Finance Committee, 19, Berkeley-street, London, W.1. Cheques should be crossed "Lloyds Bank, Ltd."

ALEXANDRA,
President of the British Red Cross Society.
ARTHUR,
Grand Prior of the Order of St. John of Jerusalem in England.

May 15th, 1920.

GENERAL SURVEY OF THE HOSPITAL SITUATION THROUGHOUT ENGLAND AND WALES.

By Sir NAPIER BURNETT, K.B.E., M.D.

Sir Arthur Stanley, chairman of the British Red Cross Society, at a meeting of the secretaries and house governors of the provincial hospitals, held at St. Thomas's Hospital on Jan. 23rd, 1920, intimated that if the voluntary hospitals would accept the assistance of the Joint Council of the Red Cross Society and the Order of St. John, then such work would be embodied in the peace programme of the two associations working jointly as they did during the war. The hospitals represented at the meeting gladly accepted this offer of the Red Cross, and thereafter it was decided to ascertain to what extent the hospitals were in difficulty, and this has been done by means of a survey. The object of the survey was twofold—namely, to show (*a*) something of the volume of work done by each individual hospital during the year 1919; and (*b*) the present financial position. The data set out below have been supplied either direct by the hospital secretary or abstracted from the hospital annual report.

THE SITUATION OF 550 PROVINCIAL HOSPITALS.

Throughout the 55 counties (England and Wales) 550 hospitals have been dealt with up to date, approximately 78 per cent. of the voluntary civil hospitals, omitting those dealing exclusively with tuberculosis. The voluntary hospitals in London are not included in the present survey, as it was felt that for many years the London hospitals have enjoyed the benefit of the great collecting organisations, such as King Edward's Hospital Fund, the Hospital Sunday Fund, the Hospital Saturday Fund, and the League of Mercy. The provincial hospitals have had no such central funds, and this fact suggested priority of assistance being given to these institutions.

TABULAR STATEMENT OF THE SURVEY.

A.—*Volume of Work Done.*

Of the 550 hospitals reviewed—
507 hospitals have 29,821 available beds.
498 hospitals treated 350,459 in-patients during the year.
376 hospitals treated 1,600,869 out-patients during the year.
296 hospitals with 23,621 beds had a daily average occupation of 18,705·36 beds (= 79 per cent.).
374 hospitals show 219,196 surgical operations during the year.
68 hospitals give figures showing the nature of cases treated—namely, medical cases, 7034 (21% of total); surgical cases, 26,466 (79% of total).

B.—*Financial Position.*

543 hospitals show ordinary income £2,835,269.
543 hospitals show ordinary expenditure £3,310,896.
Excess of expenditure over income, £475,627.

Some details of ordinary income:—
316 hospitals show as workmen's contributions, direct or through Saturday Fund, £451,426 (= 15·92% of ordinary income of 543 hospitals).
464 hospitals show as patients' contributions, £214,570 (= 7·56% of ordinary income of 543 hospitals).
248 hospitals show as Public Services (e.g., War Office, Pensions Ministry, Borough or County Councils), £517,890 (= 18·91% of ordinary income of 543 hospitals).
512 hospitals show as interest from investments, £423,044 (= 14·92% of ordinary income of 543 hospitals).
The total from these four sources, £1,606,930 (= 56·67% of ordinary income of 543 hospitals).

Of these 543 hospital accounts analysed—
449 hospitals show invested capital as £9,585,865, yielding annual interest £340,529.
66 hospitals show £33,706 as annual interest, but show no capital.
28 hospitals show no capital or interest.

DEPRECIATION OF INVESTED FUNDS.

9 hospitals show invested capital as	£306,956
Market value at end of 1919 being	£248,199
Depreciation in value	£58,757

This last item is shown merely in answer to a criticism that the hospitals in their present financial difficulty should realise some of their capital. Some few hospitals have actually been obliged to take this course, but only very few. The figures indicate that the hospitals cannot afford to unload their stock in the present state of the market.

In order to show the situation more clearly, I have divided the hospitals into the following groups, namely :—

Group A.—Large General Hospitals of 100 beds or over.
" B.—Medium-sized Hospitals of from 30 to 100 beds.
" C.—Small or Cottage Hospitals of under 30 beds.
" D.—Special Hospitals.
" E.—Out-patient Clinics.

Group.	No. of hospitals	No. of beds.	Average No. of beds to each hospital.	Total ordinary income.	Total ordinary expend.	Excess of expend. over income.	Excess of income over expend.
A.	82	15,958	194·60	£1,615,291	£1,970,976	£355,685	—
B.	87	4,724	54·29	£436,331	£476,049	£39,718	—
C.	240	3,355	13·97	£289,489	£276,855	—	£12,634
D.	98	5,784	59·02	£458,309	£540,227	£81,918	—
E.	Dispensaries. 43	New out-patients. 165,159		£51,838	£50,598	—	£1,240

COMMENTS ON THE SURVEY FIGURES.

The figures brought out in the survey may be regarded as dealing with "the facts" of the situation, and are issued as a first instalment dealing with some 550 hospitals—or approximately 78 per cent. of all provincial hospitals—a sufficiently broad basis to draw conclusions from. Further details will be published at a later date showing more particularly the voluntary hospitals, with their figures in each individual county in reference to population, &c.

Two additional figures, not shown in the above statement, were taken out, namely :—(*a*) the average length of stay in hospital of each in-patient; (*b*) the average annual cost per occupied bed.

The methods employed by some of the hospitals in ascertaining these data varied so much that I had no option but to discard the results. For example, some hospitals included their "tonsil and adenoid" cases—usually in hospital only 24 hours—while other hospitals excluded these in arriving at their "average length of stay" figure. Again, in regard to "cost per occupied bed" I found that some hospitals included the cost of out-patients, while others deducted such expenditure, so that I concluded the figures, for purposes of comparison, were unreliable.

The volume of work done at the 550 hospitals reviewed shows that approximately 2 million patients received treatment during the year. The figure shown for out-patients indicates individual cases, and is not merely a record of "attendances."

During the war, owing to depleted clerical staff, many of the hospitals allowed certain details to lapse from their records. Hence it is that only 296 of the 550 hospitals give the "average daily occupation of beds"; but where it has been given it reveals the high occupation of 79 per cent. This is undoubtedly high when taken for the whole year, during part of which, as a rule, some ward or wards are closed for cleaning or disinfection purposes.

A further testimony of the enormous volume of work done in these hospitals is seen in the figure of 219,196 surgical operations during the year. These included both major and minor operations where an anæsthetic has been employed, but do not include dental operations.

One other interesting figure is shown under the ratio of medical to surgical cases treated. It is true that only some 68 hospitals give these figures, but they are sufficiently numerous as to indicate a present-day tendency towards catering for surgical work.

Turning to the financial position, it will be seen that the excess of expenditure over income for the hospitals under review amounts to £475,627. Approximately 75 per cent. of this deficit belongs to the large general hospitals of 100 beds or over, of which there are 82 in number. It would appear from these figures that big hospitals situate in the populous industrial centres are supplying a much larger service than is recognised by the local communities. The classification of the hospitals reviewed into groups according to their number of beds brings out more clearly the financial position.

The difficulties at present being experienced by the voluntary hospitals may be grouped under the three headings—namely, (*a*) need of increased financial support; (*b*) need of increased bed accommodation; (*c*) need of increased supply of nurses.

Appended hereto is a suggested scheme for assisting the voluntary civil hospitals.

OUTLINE OF SCHEME FOR ASSISTING THE VOLUNTARY CIVIL HOSPITALS.

This scheme and a scheme for other work were set out in the peace programme of the Joint Council of British Red Cross and Order of St. John.

1. Hospital survey, to consist of—

(*a*) Data showing the volume of work done during the year 1919 in each individual hospital.
(*b*) The financial statement of each hospital, showing ordinary income and expenditure, invested funds, annual cost per bed, &c.
(*c*) Showing by maps the hospital situation in each county in ratio of beds to population.

2. Public appeal for funds, £1,000,000 per annum being aimed at. The money, it is hoped, will be raised from the following sources, viz. :—

(*a*) Public appeal through the press, &c., for individual subscriptions.
(*b*) Public appeal and personal canvass of business firms, pointing out to commercial organisations the point of view that, by setting aside each year a certain sum of money for distribution amongst charities, may be regarded as a reasonable tax on industry, and that by handing such sums to the Red Cross organisation for distribution they may be assured that the money will be distributed where it is most needed, or if ear-marked for certain districts it will be so distributed, and thus relieve the business man of the uncertainty of knowing who is in most need of his support.
(*c*) Public appeal through the great national collecting agency, known during the war as "Our Day" organisation.

The allocation of grants to hospitals will be made by a Grants Committee, on the recommendation of the Director of Hospital Services, after investigation of such matters as—

(*a*) The efficiency of the hospital administration.
(*b*) How far the hospital is meeting the needs of the locality.
(*c*) As to its buying on scientific lines, prices paid, &c.
(*d*) As to adequate payment of its nursing staff, always provided that the standard of training is of the highest.

3. Coöperative buying of hospital commodities.

4. Coördinating the hospitals into groups in counties or other areas. In every county or district there is the large central hospital which may be called the "key" hospital, and it is hoped to arrange with the smaller county and cottage hospitals to become coördinated with the key hospital by having a working arrangement as to—

(*a*) Transport of patients.
(*b*) The central hospital to receive severe cases from the smaller hospitals and return of slighter cases to the cottage hospitals and convalescent homes.
(*c*) All pathological and bacteriological work of each group of hospitals to be arranged for at the central hospital. No hospital would receive a grant from the Joint Council unless some such arrangements for the investigation of disease existed.

5. Circulation of statistical and other hospital information from the Central Bureau.

6. Convalescent hospitals.—To give every encouragement for the establishment of convalescent hospitals in the country for the dual purpose of pre-hospital and post-hospital care.

7. Meetings to be arranged in each county with the object of disseminating knowledge and stimulating interest in all matters pertaining to public health.

By means of some such scheme as that outlined above, it is hoped to assist in the development of a national coördinated hospital system for the cure and prevention of disease.

May, 1920.

SMALL-POX AND ITS PREVENTION.

THE ever-present danger of small-pox is being brought home to us by the outbreak which has occurred in the Glasgow district and which threatens to become epidemic in Scotland. The first case sickened towards the end of February, and by May 12th 130 cases had been notified in Glasgow itself, 9 other cases in the west, and 2 in the east of Scotland. New cases are now occurring in Glasgow at the rate of about 10 a day. A reference to the Urban Vital Statistics on p. 1134 shows nine deaths in the week ended May 15th. The type of disease is severe, with marked fatality among the unvaccinated, and, it may be assumed, with infectivity broadly corresponding to the severity. The Scottish Board of Health fears a wide dissemination of the disease owing to the passenger traffic between Glasgow and other parts of the country, which will be greatly enhanced during the coming holiday months. The fact that a high percentage of the population under 13 years of age is unvaccinated (it was in 1907 that the conscientious objection clause was incorporated in the Vaccination Acts) is causing the Board grave anxiety.

Under these circumstances it is a matter for congratulation that the problem of small-pox in many of its aspects has recently been studied afresh by experts such as Dr. J. C. McVail and Colonel W. G. King, I.M.S., whose conclusions are available for our help in present emergency. In his paper on "Small-pox and its Prevention," read before the Society of Tropical Medicine and Hygiene on Feb. 20th and now reprinted, Colonel

King draws attention to the widespread distribution of the disease throughout the world in both temperate and tropical climates. He further brings out in connexion with the pandemicity of small-pox the probability, hitherto but little recognised, of the existence of types and strains of differing virulence in various parts of the world. The changing virulence in different epidemics has, of course, long been known.

Types and Strains.

In the first of his Milroy lectures, delivered in March, 1919, and since conveniently republished in book form,[1] Dr. McVail made a very careful study of the principal types of infection with their differing morbidity and fatality, which should be read afresh at this juncture.

From extensive data Colonel King summarises the evidence as pointing to grades of virulence of small-pox under two types or parent stocks, two strains, descendants of the parent stocks, and one substrain.

1. The Eastern type, representing the most virulent strain and found east of longitude 40° E. and between 40° N. and 6° S., where amongst Asiatic populations the general fatality rate from the disease ranges from 33 to 50 per cent., in the vaccinated of all ages from 30 to 60 per cent. and in the unvaccinated from 60 to 80 per cent.

(i.).—Western strain, which has lost much of the virulence of its parent, the Eastern type, by gradual transference from Asiatic races and tropical conditions, and is found to the west of longitude 40° E., extending throughout parts of the world largely inhabited by Europeans and their descendants. The general fatality of this strain in pre-vaccination days varied from 18 to 25, but since this period, in the vaccinated from 1 to 5 and in the unvaccinated from 19·3 to 47 per cent.

(i.)*a*.—The Western substrain is taken to prevail over Norway, Sweden, Denmark, the British Isles, France, Switzerland, Belgium, Holland, and Germany—countries in which, the case of Belgium excepted, vaccination is carried out more or less consistently; and whereas the general fatality rate is lower than in any part of the world affected by the Eastern type or its Western strain, the existence of this substrain deserves recognition. Within the area of this substrain the virulent Eastern type fails, in the course of several transmissions, to preserve its original virulence.

2. A second type of small-pox, with a general case-fatality of 3·8 to 4·3 per cent., is recognised in South Africa, designated the "amaas" type, and characterised by its mild constitutional symptoms from both the Eastern type and the Western strain.

(ii.).—It is probable that from this mild type a strain of still less virulence has been derived, known as the "amaas" strain, and showing itself in races of European origin in America, in Canada with a general fatality rate of about 1·8 per cent., and in Australia of less than one per mille.

Doubtless the recently described "alastrim" belongs to this strain.

Is Small-pox Dying Out?

The existence of types of small-pox as pointed out by Dr. McVail is deserving of important recognition, if only to controvert the danger of falling into line with the statement emanating from Dr. C. K. Millard that small-pox, so far as this country is concerned, is dying out. Such a statement Colonel King rightly emphasises as likely to be seized upon by the antivaccinist; it might, indeed, well lead to a disastrous relaxation of our means of protection by vaccination, if such a point has not already been reached. It cannot be gainsaid that, particularly in the poorer quarters of the London area, a large proportion of the young population are growing up unvaccinated, and likely to provide a ready soil for the outbreak of a serious epidemic in the presence of a mild or unrecognised focus of infection.

An example of the possibility of such a spread is supplied by the concise account of the dissemination of the disease, contained in the paper by Captain G. G. Johnstone, who describes in the present issue of THE LANCET an outbreak of small-pox in the part of Germany occupied by the British army. But for the activities of the British military authorities in insisting on vigorous isolation of patients and contacts and the general vaccination of inhabitants, the spread of infection might well have covered a very extensive area and dangerously hampered the occupying troops.

[1] Half a Century of Small-pox and Vaccination. Edinburgh: E. and S. Livingstone. Price 5*s*. 6*d*.

Colonel King attempts to reconcile the divergent opinions expressed by Dr. Millard and Dr. McVail. The former of these two in his belief that small-pox in this country is dying out advocates the application of the "Leicester method," which neglects to enforce infantile vaccination, and trusts to careful segregation of cases and sanitary measures with vaccination of contacts. Dr. McVail, while regarding the neglect of infantile vaccination as dangerous in view of the impossibility of forecasting the incidence and type of the disease which may become prevalent, also comes to the conclusion that a great diminution in the infectivity, fatality, and prevalence of small-pox has taken place in Great Britain during the last 50 years, but attributes this to the advent of two different types—the North African and American—the probability of which is demonstrated during the period 1902 to 1905, when in London the North African type prevailed, with a mortality of 16·8 per cent. in 9659 cases, whereas in the provinces, where the milder American type was dominant, the rate was only 6·9 per cent. in 23,883 cases. The transit of the North African type to London is readily accounted for by the easy communication between Tunis (with its mortality rate of 40·4 per cent.) and Marseilles (41·4 per cent.), and thence to Paris.

The uncertainty as to the type of disease which may become prevalent, particularly under conditions now existing in the wake of the war and the impossibility of forecasting its infectivity in the face of large numbers of unvaccinated young people, are matters which cannot be neglected nor their attendant risks exaggerated. The elasticity of the legislation controlling vaccination and the unwise exemption granted to conscientious objection demand urgent revision of the whole subject in its bearing on national prophylaxis.

Colonel King quotes convincing arguments against the application of the "Leicester method," particularly in the tropics, instancing the influence of vaccination in Calcutta in five years preceding 1914. The Gloucester epidemic of 1896 referred to, also provides ample proof of the inefficacy of segregation without vaccination. He maintains that there is no reason to believe that small-pox is dying out in consequence of modern sanitary conditions—a result which would not necessarily be confined to Great Britain.

Geographical Distribution of Small-pox.

The valuable and instructive map of the world accompanying Colonel King's paper affords a graphic means of recognising the distribution of the particular types and strains, together with their comparative virulence and fatality rates drawn from the largest and most reliable data, and confined to the period of, and subsequent to, 1902.

The countries where vaccination is compulsory, where compulsion is well exercised, where vaccination receives official recognition but is not legally enforced, and where enforced in special areas, are designated by distinctive markings. From these much may be learnt—e.g., the fact that in Belgium, where vaccination is merely recommended, the fatality rate is 16·3, and in Luxembourg 19·7, whereas in France and Holland, on either side, both countries well vaccinated, the rates are only 8·4 and 8·7 respectively.

Interesting conclusions are also drawn from this map:—

1. As to possible modes of transference of the disease from country to country. Such are obvious in the passage of travellers during incubation, by trade and pilgrim land routes and by shipping routes through seaports within a 12 days' period.

2. In the influence of climate on the virus Duncan Stewart is quoted as concisely defining the conditions under which its diffusion is favoured by dry and cold weather and adversely by damp heat—factors which govern equally the vitality of the vaccine.

3. Individual peculiarities of families, communities, and races, known to exist both in their susceptibility to the disease and their response to vaccination, may well influence an epidemic outbreak and enable a weakly strain of small-pox to regain its virulence when implanted on a susceptible soil.

4. The influence of a low grade of personal and sanitary hygiene renders possible the harmful action of associated organisms in aggravating the variolous skin lesions and in

increasing the destructive properties of the virus, thus favouring the most virulent form of the disease. Accident or neglect of proper precautions in vaccination may, for the same reason, increase the local inflammatory reaction. The beneficial effect of improved sanitation, it is suggested, may be due to the limitation of extraneous and associated organisms, and consequently lead to a diminution in extent of the small-pox lesion. Conversely, it is deduced that the introduction of small-pox of a mild type among people of low vitality in filthy and overcrowded conditions will result in a raising of virulence of the disease. The variation in virulence of small-pox epidemics has long been recognised, and may be due to such factors producing an increase of or impairment of resistance to disease.

5. Attenuation in virulence of small-pox may be expected to occur when introduced into a community whose resistance has been raised in whole or in part by vaccination. For ample evidence is claimed to show that a beneficial modifying action persists as a result of infantile vaccination, even in the absence of revaccination.

The facts as to the power of vaccination to protect the individual and prevent the spread of infection in the community are so clear as, Colonel King states, to need no emphasis; those bearing on the duration of immunity afforded by vaccination or an actual attack of small-pox are, however, far from attaining definition, albeit statistics would seem to show that the vigorous age of life may afford to vaccinated and unvaccinated alike a better chance of resistance than at the early or late periods of life, but failing protection by means of previous small-pox, inoculation, or vaccination, all ages are equally susceptible to attack.

Revaccination.

As experience of the disease grows in both temperate and tropical countries the period of protection conferred by a primary vaccination has, Colonel King states, gradually diminished, and evidence shows that in the case of those vaccinated in early life the incidence and fatality of small-pox increase with advance of age—e.g., the susceptibility of the aged inmates of the almshouse at St. Vith, as recorded in Captain Johnstone's paper. The necessity for revaccination was recognised by the Government in Madras so long as 1894, and, as is of course well known, is acted on and strictly carried out in our services. Such examples should materially assist in educating public opinion in this direction, and lead to a realisation of the importance of the legislation in force in France, also in Prussia since 1874 by which revaccination is secured at puberty.

Vaccine Institutes and Vaccine Stock.

Considerable attention is devoted by Colonel King to the great importance of the provision of vaccine institutes, particularly in tropical climates, with special regard to the requirements of the tropics and essential equipment for the maintenance of strict asepsis and preparation of vaccine by properly trained staffs. He emphasises the necessity of maintaining the vaccine used in the tropics in a high state of activity, and, bearing on this need, contends that as the Eastern type of disease is possessed of much greater and more deadly virulence than the Western a relation exists between this virulence and the case-fatality not only in the unvaccinated but in the degree of immunity from death conferred by vaccination in the case of those infected by the Western type when compared with those attacked by the Eastern type. He quotes tables in support of this belief, and claims that so formidable a type as the Eastern calls for the use of a very special vaccine, for its virulence is deadly even among the vaccinated. He points out that the question of the origin of vaccine or of the true nature of the *causa causans* of small-pox is in danger of being indefinitely shelved and that the degeneration or death of a vaccine stock, despite the most favourable conditions prevailing, may occur as the result of accident or unforeseen circumstances. Considerable controversy has raged in time past on the subject of vaccine stock and when Ceely, in 1839, and others subsequently, secured stocks by direct inoculation of bovines by the use of both vaccine and small-pox virus on different but closely adjacent sites. Doubts were raised as to the genuineness of these results and those of Voigt at a later date in 1881. It remained for Simpson, in 1884, to close the controversy by successfully securing undoubted variola-vaccine stock through direct inoculation of a bovine with small-pox virus, and by the use of this stock for the vaccination of 1200 infants without untoward result. In dealing at length with the question of vaccine stock Colonel King describes another recognised source in the disease as it appears in bovines (cow-pox), and the process by which degenerated vaccine may be rejuvenated. He supports the method of obtaining variola-vaccine stock by the inoculation of bovines with vaccine and small-pox virus as sound and certain, and is further of opinion that the mode of rejuvenating vaccine is possible by utilising an animal which has been regarded as of no further use for the purpose, but where an attempt to get variola-vaccine has been made with simple variolation without vesiculation resulting. The use of intravenous injection is dwelt upon as a likely means in future of securing certainty as to the sufficiency of the dose of small-pox to obtain vesiculation in bovines. Such a method of vaccination is suggested by a quoted writer as applicable to the human being, once the dose is established, and likely, without any prolonged disability or discomfort, to confer immunity covering a very long period.

The Dual Nature of Small-pox.

Support is lent to the view originally expressed by Simpson in 1892 as to the dual nature of small-pox, and to the suggestion of others, at a later date, that symbiosis plays a part in vaccine production. The suggestion made that, if the Chinese have successfully caused small-pox to be communicated by blowing scabs into the nostrils, this dual nature may be due, as possibly in the case of influenza, to an ultramicroscopic organism, and its requiring a symbiosis for full virulence, opens the ground for plentiful discussion.

Vaccination Departments.

Granted the supply of vaccine in an active condition and in quantity sufficient for primary vaccination, revaccination, and epidemic emergencies, it next devolves to ensure use of the vaccine to the best advantage. This, Colonel King rightly maintains, "can only be secured by determining to utilise well-educated and reasonably-paid men" in staffing the vaccination departments—e.g., sanitary inspectors who, in addition to a course of training in hygiene, physiology, and bacteriological demonstrations, undergo periodical examinations and a three-months' course in all that appertains to human and animal vaccination, in order to become vaccinators and deputy inspectors of vaccination under the supervision of a special medical officer.

Sanitary Organisation against Small-pox.

The Scottish Board of Health in a recent circular impresses upon medical practitioners the need for close coöperation with the public health departments in their efforts to prevent the spread of the disease, with a view to securing early diagnosis in suspected cases. Communication with the medical officer of health of the area at the earliest moment is imperative in order that, should suspicion be confirmed, all necessary precautions may be taken pending removal to hospital. Where no doubt exists as to the diagnosis the patient and all immediate contacts are warned to remain where seen until the arrival of the sanitary officials. The danger to others of infected persons travelling by car or other public vehicle is always to be kept in view and impressed on patients.

Colonel King's highly important contribution to the subject of small-pox and its prevention concludes with a well-advised note on sanitary organisation which, he says, should be directed to securing instant intelligence of attacks and prevention of spread of infection. He emphasises the call for vaccination as the first line of defence with sanitation available as a reserve as soon as danger threatens.

The experience of the Scottish Board of Health suggests that the protection which successful vaccination affords is not sought by the population at large until a wholesale dread of contracting small-pox arises from the actual proximity of the disease and the occurrence of deaths as a result of it. The general practitioner can render invaluable assistance not only

in vaccinating those who desire to be vaccinated, but by persuading all those with whom his work brings him in contact—and especially the parents or guardians of unvaccinated children—to have the operation performed without delay.

As no country can be said to be free from invasion in the presence of a pandemic disease, legislation should be possible to prevent the passage of persons from one country to another unless freedom from communicable disease is assured. Such a principle should apply particularly to aliens seeking labour in tropical countries and the guarantee be required of recent vaccination. Colonel King further draws attention to the necessity of the British Empire awaking to the importance of the example in force in the public health service of America, by placing special officers at the chief foreign ports, and elsewhere trusting to consuls, to maintain touch of diseases throughout the world. Professor E. W. Hope in this connexion is quoted as forcibly proclaiming the error of ignoring the necessity for bringing the pandemic disease of small-pox within the scope of an international convention. Such a step can alone rouse us from the sense of false security, short of a severe and widespread outbreak for which the increasing number of unvaccinated persons in this country and elsewhere is smoothing the way.

THE ROYAL SOCIETY CONVERSAZIONE.

WHILE the exhibits at the conversazione of the Royal Society, held on Wednesday evening, May 12th, were not so numerous as on pre-war occasions, they were of considerable interest, covering many scientific fields, though medicine was represented in few direct ways. Pure science seems to have held first claim to parade, but the opportunity seems to have been missed of presenting examples of the fruits of advice given by the Society to the Government through the war. Nor were there any illustrations of the advances made by a coöperation of university activities with those of the factory.

Fluorescence, Osmotic Processes, and Synthetics.

A very fascinating demonstration was that of fluorescence in Lepidoptera by ultra-violet radiation by Dr. J. C. Mottram and Dr. E. A. Cockayne. These investigators employed filtered light from a mercury-vapour lamp, using only radiations of certain wave-lengths. When exposed to these rays and viewed, of course, in the dark, the fluorescence of the wings of butterflies and moths was most remarkable, some more brilliant than others resembling a bright opal matrix under the most favourable conditions. This curious analysis of light (we must remember white light is a composite of primary colours) can be exhibited to some extent in a solution of the wings of certain species in glacial acetic acid.

Close by, an interesting document was shown: the original letter of Priestley which in 1779 announced the discovery that plants give off oxygen.

Osmosed clay easily enough may have medical significance. Specimens of this were shown by the Osmosis Company, Ltd. So far the process has been applied to the purification and decolorising of china clay for the manufacture of paper and clean fire-clays, and the results are of the most encouraging description. The process is based on an electrolytic selective action.

The only exhibit illustrating a captured industry was that of Messrs. J. Crosfield and Sons, Ltd., who showed an attractive series of synthetic products for perfumery formerly elaborated entirely in foreign countries. The manufacture was installed owing to the difficulty, in some cases impossibility, of obtaining such products during the war.

Bacterial Photography, Mites, Fleas, and Vitamines.

There was an interesting series on view in the Council Room of photomicrographs obtained by means of ultra-violet light by Mr. J. E. Barnard. An important advantage of employing ultra-violet light for this purpose in microscopical work is that biological preparations, particularly bacteria and other micro-organisms, are rendered sufficiently opaque to ultra-violet light of suitable wave-length to render staining unnecessary. This appears to open up a very promising field of investigation, for by this method micro-organisms can be photographed in the living state.

Professor R. Newstead exhibited samples of mite-infested flour, which illustrates the importance of preventing mite invasion. When this happens the flour is ruined, and develops a most unpleasant odour and becomes discoloured owing to the quantities of excrement with which it is charged. A high moisture content invites invasion.

Professor G. H. F. Nuttall and Dr. D. Keilin exhibited microscopic specimens illustrating hermaphrodites of inter-sexual type in *Pediculus humanus*. The exhibit comprised a complete series of forms from those of male type to those of female type, the coexisting characters of both sexes being present to a varying degree. It is pointed out that the inter-sexual forms which occur among pediculi in nature are derived from the crossing of the races *of P. humanus*—i.e., capitis and corporis. Some of these crosses yield up to 20 per cent. of hermaphrodites, and the appearance of hermaphrodites in a given stock is always accompanied by a great decrease or almost complete disappearance of females.

Professor E. Mellanby, whose work on the subject is familiar to our readers through our columns, gave striking illustrations of the effect of the absence of an accessory food factor (probably fat-soluble A) in the diet of puppies which developed rickets. The investigation by Mrs. Mellanby also demonstrated that diets deficient in an accessory food factor, possibly fat-soluble A, produce teeth defectively calcified and more or less irregularly placed in soft jaws. Referring to teeth, Dr. J. H. Mummery, in a demonstration of the nerve end-cells in the pulp of the human tooth, pointed out that the mode of distribution of sensory nerves in the pulp of the tooth was not met elsewhere in the body.

Frog Metamorphosis, Plant Respiration, and Wireless Telephony.

The influence of thyroid feeding on the frog was instanced in the exhibit of Mr. Julian Huxley and Mr. Lancelot T. Hogben. There were examples of (1) acceleration of a frog's metamorphosis by thyroid feeding; (2) metamorphic changes induced by iodine; and (3) metamorphosis of amblystoma by thyroid feeding with a control.

A quite interesting demonstration of an ingenious apparatus recording the rate at which air under slightly reduced pressure is drawn through the pores of a leaf was given under the direction of the Botany Department of the Imperial College of Science and Technology. This recording porometer gives a measure of the size of the pores, which varies for different leaves. It is of interest also to mention the system described by Mr. Edwin Edser of concentrating minerals and coal by froth flotation. Shortly, this is done by adding water to the low-grade mineral, which is reduced to a fine state, then forcing a stream of minute bubbles of air through the fluid, which brings the valuable material to the surface, which can be skimmed off. The barren material, rock or slate, is not floated.

Lastly should be mentioned as a modern wonder the demonstration of wireless telephony given in the meeting room. The audience here heard plainly in all parts of the room a musical performance being given 30 miles away (Chelmsford). The loud-speaking telephone had no communication with that place except by the all-pervading ether; there were no wires, no pipes—in a word, no visible means of transmission at all.

Sir J. J. Thomson, the President, received a large company of distinguished guests.

DONATIONS AND BEQUESTS.—The Chelsea Hospital for Women has received a grant of £400 from the trustees of the Zunz Bequest.—The Royal Dental Hospital of London has received a donation of £500 from the trustees of Smith's (Kensington Estate) Charity.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Aberdeen Hospitals Scheme.

AT a meeting of the Aberdeen University Court held on May 11th the following resolutions were unanimously adopted:—

Having considered the resolutions of the Aberdeen Medico-Chirurgical Society passed in conference with other members of the medical profession in the North of Scotland on March 16th, and having heard the exposition of the same made by Professor Ashley Mackintosh at a conference in the Town House of the public bodies concerned on April 19th, the Court now resolves to express its agreement—

(*a*) With resolution 1, on the growing and clamant need in Aberdeen for largely increased hospital accommodation of the most modern type, in order adequately to meet the requirements of the city and the North of Scotland, especially in regard to the Royal Hospital for Sick Children and the Royal Infirmary;

(*b*) With resolution 2, that these requirements cannot suitably be met by any extension of these hospitals on their present sites or in their immediate vicinity; and

(*c*) That the substance of resolution 3—namely, not only that the concentration of these hospitals upon a common site, on which their extension from time to time would be possible, is very desirable, but that, in view of all the circumstances, the present is an opportune time for taking the initial step towards that end. Further, the Court resolves to express its opinion that, should such combination of the hospital be carried out, it would be in the interests of medical education as well as of the patients if certain departments of medical instruction and research in the University were removed, as opportunity might offer, to the same site.

At a meeting of the Aberdeen Royal Infirmary Board held on May 12th the board, after consideration of the resolutions of the Aberdeen Medico-Chirurgical Society, passed at its meeting on March 10th last, and submitted and explained by Professor Ashley Mackintosh at the conference of public bodies interested, held in the Town House on April 20th last, resolved that, to enable them to lay the proposals suggested in the society's resolutions before the managers for their consideration, it was desirable that further conferences should proceed between the public bodies interested in order that the financial and other aspects of the scheme should be considered, with a view to determining its practicability. The board approved of the chairman attending any further conferences.

Aberdeen University Appointments.

At a meeting of the Aberdeen University Court, held on May 12th, Mr. J. Scott Riddell was appointed external examiner in surgery for the degree examinations which are to be held at the end of the present term. It was agreed to appoint a lecturer in anatomy at a salary of £400 a year.

Small-pox in Glasgow: Memorandum on the Value of Vaccination.

In view of the increasing prevalence of small-pox in Glasgow and neighbourhood, the Council of the Royal Faculty of Physicians and Surgeons issued on Saturday last, through the local press, a reasoned statement of the value of vaccination as a protection against small-pox. After briefly reviewing the appointment of the Royal Commission in 1889 and the main conclusions to which it came, the gist of Section 503 is quoted:—

We can see nothing to warrant the conclusion that in this country vaccination might safely be abandoned and replaced by a system of isolation. ..... What [isolation] can accomplish as an auxiliary to vaccination is one thing; whether it can be relied on in its stead is quite another.

The Memorandum concludes with the following summary of the events of the 1900/02 epidemic of small-pox in Glasgow:—

The value of effective recent vaccination was amply illustrated in local experience during the prevalence of the disease in Glasgow which began in 1900. Early in 1901 the committee on health offered free vaccination on a wide scale, and ultimately over 400,000 of the population availed themselves of the offer. Not one case of small-pox occurred among this number. All the cases of the disease which did occur—over 1800—were drawn from those who had not accepted the offer. We think it impossible to over-emphasise this demonstration of the value of recent vaccination. It is strengthened by the experience of the small-pox hospital itself. The medical and nursing staff numbered 80; all were efficiently vaccinated, and none contracted the disease, although in daily contact with it. Fifty hospital servants had a like experience. For purposes of clinical instruction in the disease 150 practitioners and students of medicine visited the hospital. It was a condition of admission that they should be vaccinated beforehand; none contracted infection. It was necessary to extend the hospital during the outbreak, and 230 workmen were employed; 217 accepted revaccination, and none of these contracted the disease; 13 refused vaccination, or for some other reason were not recently vaccinated; 5 of the 13 contracted the disease, and 1 died.

Dr. A. Freeland Fergus, President of the Faculty, and other medical men who signed the Memorandum, state that collectively they regard these facts as completely establishing the protective value of vaccination.

At the recent monthly meeting of the Royal Faculty of Physicians and Surgeons of Glasgow, James Devon, L.R.C.P. Edin., &c., Alexander Morton, M.D., and Edward James Primrose, M.D., B.Sc., were admitted as Fellows of the Faculty.

The Glasgow University Club will dine at the Holborn Restaurant, London, on Friday, June 4th, at 7.30 P.M., the Right Hon. A. Bonar Law, Lord Privy Seal and Lord Rector of the University, in the chair. All communications should be made to Dr. Alex. Macphail, honorary secretary, at St. Bartholomew's Hospital, London, E.C. 1.

May 17th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Influenza Statistics.

THE municipal registration office has just issued a full report on the statistics of last year's epidemic of influenza. Apparently the epidemic was more serious than was thought and more serious also than was shown by the actual death-rate. 3098 men and 5377 women died in Paris of influenza, which attacked principally healthy adults, and was especially virulent in the case of women from 20 to 40 years old, whose mortality is given at the amazing figure of five times the average influenza mortality.

Institute of Hygiene in the University of Paris.

An institute designed to train specialists in this branch of medicine and to centralise the laboratories of allied subjects is apparently soon to be established. An agreement has been arrived at between M. Breton, the head of the new Ministry of Hygiene, and the Ministry of Public Instruction, represented by M. Roger, dean of the Faculty of Medicine. As a matter of fact the teaching of hygiene is already well organised, with theoretical and practical classes, at the Faculty of Medicine. There is no question of supplanting these courses. It can, nevertheless, be foreseen that the two organisations will inevitably overlap, with resulting unnecessary increase of expense in upkeep, personnel, and buildings. M. Hayem had suggested to the Academy of Medicine that it would be possible to economise considerably by taking over the already existing well-appointed Institute of Hygiene established by the Germans at Strasbourg, but the professor of the Faculty of Hygiene at Paris brought up a number of objections and claimed an institute for Paris. If public hygiene depended merely on the number of establishments created and on the amount of money laid out, its advance in Paris would be assured.

The Association of the Presse Médicale Française.

This association has recently held an election, the terms of office of the presidents, M. Albert Robin and M. Marcel Baudouin, having expired. Dr. Raoul Blondel, director of the *Revue Thérapeutique*, and Dr. La Sourd, editor of the *Gazette des Hôpitaux*, and, to represent the provincial press, Dr. Monprofit, of Angers, have been elected presidents.

May 17th.

THE Mayor of Volksrust, Transvaal, presided at a dinner held recently in honour of Dr. W. J. Watt, local medical officer of health and South African Railway surgeon. The company was a very representative one, and Dr. Watt was accorded many demonstrations of the goodwill and regard in which he is held by the community of this important district. The evening concluded with the presentation of a well-filled purse, the gift of a wide circle of friends.

A MONTHLY RECORD OF ATMOSPHERIC POLLUTION.

METEOROLOGICAL OFFICE: ADVISORY COMMITTEE ON ATMOSPHERIC POLLUTION: SUMMARY OF REPORTS FOR THE MONTHS ENDING

Dec. 31st, 1919.

Place.	Rainfall in millimetres.	Metric tons of deposit per square kilometre. Insoluble matter. Tar.	Insoluble matter. Carbonaceous other than tar.	Insoluble matter. Ash.	Soluble matter. Loss on ignition.	Soluble matter. Ash.	Total solids.	Included in soluble matter. Sulphate as (SO_3).	Included in soluble matter. Chlorine (Cl).	Included in soluble matter. Ammonia (NH_3).
ENGLAND.										
London—										
Meteorological Office	80	0·20	2·07	3·66	2·88	2·24	11·05	0·88	0·85	0·08
Embankment Gardens	81	0·15	2·64	6·03	2·08	5·07	15·97	2·40	0·89	0·17
Finsbury Park	102	0·02	2·05	7·05	2·64	6·46	18·23	3·34	0·98	0·18
Ravenscourt Pk.	84	0·13	2·06	5·41	2·87	5·02	15·48	2·61	0·73	0·18
Southwark Park	86	0·09	2·15	3·99	3·45	7·63	17·30	3·93	0·97	0·20
Wandsworth Com.	87	0·12	0·95	2·80	3·11	6·00	12·99	3·02	0·92	0·10
Golden Lane	71	0·04	2·07	2·68	2·28	4·27	11·33	2·13	0·91	0·21
Kingston-upon-Hull	82	0·20	1·27	2·89	1·80	5·41	11·57	2·54	1·10	0·09
Newcastle-on-Tyne	73	0·15	2·16	3·66	1·02	4·65	11·64	1·67	0·64	0·13
Rochdale	—	—	—	—	—	—	33·06	—	—	—
Rothamsted	106	—	0·54	0·51	2·12	2·10	5·28	—	—	—
St. Helens	132	0·17	3·45	5·18	1·98	6·62	17·40	2·36	1·98	0·11
Southport—										
Hesketh Park	108	0·02	0·68	1·23	1·89	6·75	10·58	2·29	1·24	0·01
Woodvale Moss	93	—	—	—	—	—	6·58	—	—	—
SCOTLAND.										
Glasgow—										
Alexandra Park	111	0·11	1·04	3·97	3·02	4·95	13·09	2·35	1·62	0·15
Bellahouston Pk.	124	0·01	0·79	1·58	2·28	6·31	10·97	2·20	1·94	0·07
Blythswood Sq.	122	0·12	1·03	3·74	3·14	5·65	13·68	2·53	1·98	0·19
Botanic Gdns.	120	0·01	1·91	2·80	2·78	6·70	14·20	2·76	1·63	0·12
Queen's Park	131	0·05	0·61	1·29	1·52	5·60	9·07	2·26	1·70	0·05
Richmond Park	143	0·09	1·93	3·62	2·88	7·25	15·77	2·99	1·89	0·21
Tollcross Park	121	0·08	1·88	3·85	3·05	6·29	15·15	3·47	1·57	0·13
Victoria Park	117	0·05	0·75	2·60	3·03	5·04	11·47	2·46	1·56	0·15

Jan. 31st, 1920.

Place.	Rainfall in millimetres.	Metric tons of deposit per square kilometre. Insoluble matter. Tar.	Insoluble matter. Carbonaceous other than tar.	Insoluble matter. Ash.	Soluble matter. Loss on ignition.	Soluble matter. Ash.	Total solids.	Included in soluble matter. Sulphate as (SO_3).	Included in soluble matter. Chlorine (Cl).	Included in soluble matter. Ammonia (NH_3).
ENGLAND.										
London—										
Meteorological Office	55	0·28	3·16	5·17	1·98	1·32	11·91	1·04	0·97	0·05
Archbishop's Park	60	0·09	2·27	2·79	0·72	3·78	9·65	1·44	0·70	0·06
Finsbury Park	62	0·05	0·91	2·46	2·37	3·03	8·83	1·65	0·59	0·06
Southwark Park	56	0·07	1·22	2·52	1·30	3·53	8·63	1·27	0·66	0·11
Victoria Park	56	0·02	0·62	1·42	0·96	2·51	5·53	1·02	0·59	0·04
Wandsworth Com.	62	0·04	0·54	1·63	1·51	3·20	6·92	1·18	0·80	0·08
Golden Lane	49	0·06	2·18	3·52	0·98	3·33	10·07	1·51	0·73	0·08
Birmingham—										
Central	71	0·11	3·30	7·05	0·92	6·24	17·62	2·37	0·57	0·05
Aston	64	0·10	1·83	5·29	0·76	3·65	11·63	1·38	0·45	0·04
South-Western	74	—	—	—	0·65	2·43	—	0·80	0·29	0·02
Kingston-upon-Hull	51	0·12	0·86	2·54	1·74	8·66	13·92	1·70	0·73	0·05
Malvern	80	Nil	0·24	0·88	1·13	2·83	5·20	1·80	0·43	0·25
Newcastle-on-Tyne	68	0·19	2·27	3·54	1·23	2·70	9·91	1·64	0·48	0·14
Rochdale	—	—	—	—	—	—	26·50	—	—	—
Rothamsted	66	—	0·55	0·98	0·26	2·34	4·13	—	—	—
St. Helens	104	0·26	3·36	4·99	0·41	5·81	14·83	2·07	1·68	0·23
Southport—										
Hesketh Park	85	0·03	0·58	1·50	0·96	4·53	7·60	1·19	0·95	0·13
Woodvale Moss	54	—	—	—	—	—	4·55	—	—	—
SCOTLAND.										
Glasgow—										
Alexandra Park	103	0·06	1·52	2·48	4·50	5·18	13·74	2·78	2·09	0·10
Bellahouston Pk.	115	0·04	0·73	1·18	4·65	6·83	13·43	3·15	3·84	0·08
Blythswood Sq.	109	0·06	1·60	2·45	3·87	5·76	13·74	2·94	2·75	0·17
Botanic Gdns.	128	0·08	1·31	2·46	4·91	5·99	14·75	3·43	2·48	0·14
Queen's Park	126	0·05	0·81	1·85	2·54	3·02	8·27	2·01	2·51	0·10
Richmond Park	132	0·08	1·42	2·45	4·13	6·63	14·71	3·39	2·59	0·20
Ruchill Park	127	0·06	1·71	2·61	5·52	3·48	13·38	3·42	2·69	0·13
Tollcross Park	121	0·06	1·67	3·32	3·10	5·32	13·47	3·12	2·25	0·17
Victoria Park	120	0·05	1·84	0·32	3·85	6·27	12·33	2·89	2·58	0·15

"Tar" includes all matter insoluble in water but soluble in CS_2. "Carbonaceous" includes all combustible matter insoluble in water and in CS_2. "Insoluble ash" includes all earthy matter, fuel, ash, &c. One metric ton per sq. kilometre is equivalent to: (*a*) Approx. 9lb. per acre; (*b*) 2·56 English tons per sq. mile; (*c*) 1 g. per sq. metre; (*d*) 1/1000 mm. of rainfall.

The personnel of public health authorities concerned in the supervision of these examinations and of the analytical work involved remains the same as published in previous tables. The analyses of the rain and deposit caught in the gauge at the Meteorological Office are made in THE LANCET Laboratory.

There were no returns from the following stations during the month of December, 1919: Victoria Park (London), Malvern, and Manchester, while at one station in Glasgow (Ruchill Park) an accident happened to the collecting bottle, and at Stirling the bottles were broken by frost. There was again lead present in the deposit of the Glasgow samples. In January, 1920, there were no returns from the following stations: Ravenscourt Park (London), Stirling, and Manchester. Evidence of contamination from the fittings of the gauge is reported from the south-western station at Birmingham. The gauge at the observation station on the London Embankment Gardens has been transferred to Archbishop's Park. Lead was again reported in the deposit of the Glasgow samples.

URBAN VITAL STATISTICS.

(Week ended May 15th, 1920.)

English and Welsh Towns.—In the 96 English and Welsh towns, with an aggregate civil population estimated at nearly 18 million persons, the annual rate of mortality, which had declined from 18·7 to 13·8 in the seven preceding weeks, was again 13·8 per 1000. In London, with a population of nearly 4½ million persons, the annual death-rate was 12·5, or 0·5 per 1000 below that recorded in the previous week, while among the remaining towns the rates ranged from 5·0 in Southend-on-Sea, 6·4 in Ealing, and 6·6 in Edmonton, to 23·3 in Wigan, 26·6 in Sheffield, and 28·8 in Tynemouth. The principal epidemic diseases caused 339 deaths, which corresponded to an annual rate of 1·0 per 1000, and comprised 116 from measles, 78 from whooping-cough, 75 from infantile diarrhœa, 41 from diphtheria, 20 from scarlet fever, and 9 from enteric fever. Measles caused a death-rate of 1·6 in Brighton and in Swansea, 1·7 in Walsall, 2·4 in Wigan, 3·8 in Rhondda, and 3·9 in Norwich, and whooping-cough of 2·4 in Darlington. The deaths from influenza, which had steadily declined from 392 to 201 in the seven preceding weeks, rose to 216, and included 51 in Sheffield, 32 in London, 10 in Newcastle-on-Tyne, and 9 in Manchester. There were 1916 cases of diphtheria, 1757 of scarlet fever, and 6 of small-pox under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospitals, against 1947, 1794, and 11 respectively at the end of the previous week. The causes of 41 of the 4708 deaths in the 96 towns were uncertified, of which 8 were registered in Liverpool, 7 in Birmingham, and 3 each in Stoke-on-Trent and Manchester.

Scotch Towns.—In the 16 largest Scotch towns, with an aggregate population estimated at nearly 2½ million persons, the annual rate of mortality, which had been 19·2, 18·3, and 18·4 in the three preceding weeks, fell to 16·9 per 1000. The 397 deaths in Glasgow corresponded to an annual rate of 18·6 per 1000, and included 27 from measles, 22 from influenza, 9 from small-pox, 4 each from diphtheria and infantile diarrhœa, and 2 from whooping-cough. The 79 deaths in Edinburgh were equal to a rate of 12·1 per 1000, and included 5 from influenza and 1 each from diphtheria and infantile diarrhœa.

Irish Towns.—The 164 deaths in Dublin corresponded to an annual rate of 20·6, or 2·3 per 1000 below that recorded in the previous week, and included 11 from measles, 10 from whooping-cough, and 1 each from infantile diarrhœa and influenza. The 134 deaths in Belfast were equal to a rate of 16·9 per 1000, and included 8 from influenza, 6 from infantile diarrhœa, and 1 from whooping-cough.

UNIVERSITY OF LIVERPOOL.—Messrs. Alfred Holt and Co. have given £15,000 to the Liverpool University Appeal Fund. The Association of West African Merchants and the African Section of the Chamber of Commerce are raising £12,000 by voluntary collection from their members to provide a Chair of Colonial Commerce, Administration, and History at Liverpool University, and to increase the endowments of the Liverpool School of Tropical Medicine.

Correspondence.

"Audi alteram partem."

THE GENERAL PRACTITIONER AND THE TREATMENT OF TUBERCULOSIS.

To the Editor of THE LANCET.

SIR,—At the present time, with thousands of cases of tuberculosis among discharged soldiers entitled to medical care and treatment at the hands of the Public Health Service, we find ourselves confronted by the fact that practically nowhere will general hospitals admit this class of patients. Moreover, there is almost everywhere throughout the United States a lamentable shortage of hospital facilities for those ill with tuberculosis. The opening of general hospitals to this class of patients would do very much more than provide relief for a large class of unfortunates; it would undoubtedly contribute enormously to the efforts now being made to control tuberculosis.

As conditions are now, the interne serving his time in any of the general hospitals has practically no opportunity whatever to familiarise himself with the diagnosis and treatment of pulmonary tuberculosis. It is small wonder, therefore, that so large a proportion of the general practitioners fall far short in their diagnoses of pulmonary tuberculosis. The present practice also fosters the erroneous belief in some miraculous virtue in climate in the treatment of tuberculosis, yet those familiar with the disease recognise that it is the proper use of fresh air which constitutes the valuable element in treatment at the various well-known sanatoriums.

In an effort to make better provision for the tuberculous among discharged soldiers, and at the same time to help bring about an improvement in our campaign against tuberculosis, Dr. Hugh S. Cumming, Surgeon-General of the U.S. Public Health Service, has sent the following telegram to the American Medical Association, now in session in New Orleans, La.:—

"I desire to urge more active participation by the general practitioner and by general hospitals in the treatment of tuberculosis. To insure earlier diagnoses, properly train internes and other personnel, popularise treatment in the home climate, provide additional facilities, I earnestly indorse the resolution passed by the National Tuberculosis Association in 1916, recommending that general hospitals should admit tuberculous patients and provide separate wards for that purpose. Sanatoriums and specialists in tuberculosis will always be needed and we should have more of them, but I believe that success in the anti-tuberculosis campaign is largely dependent upon: first, convenient facilities for observation and prompt treatment of patients with open tuberculosis; and second, in a sharpened perception and higher degree of skill by which the family doctor will make early diagnoses or even forestall the development of clinical tuberculosis in the adult before a definite diagnosis is possible. To provide adequate care for tuberculous ex-Service men and others, to protect infants from infection, enlist the aid of the general practitioner, allay phthisiophobia, and improve home treatment of tuberculosis, the opening of general hospitals to this most common of all serious diseases will materially assist."

I write by direction of the Surgeon-General, and am, Sir, yours faithfully,

CHARLES BOLDUAN,
Chief, Section of Public Health Education.

Office of the Surgeon-General, Treasury Department, Bureau of the Public Health Service, Washington, May 4th, 1920.

*** The participation of the general practitioner in the treatment of tuberculosis, whether domiciliary or institutional, is the principle which all medicine in this country supports.—ED. L.

POSITION OF THE CITY BACTERIOLOGIST.

To the Editor of THE LANCET.

SIR,—The annotation in your issue of May 15th on the position of the city bacteriologist moves me to offer a few remarks. With the bulk of it I am in complete agreement; the proposed arrangement works very well, and the difficulty of specialising bacteriology is adequately met, as far as the student is concerned, by leaving the teaching of bacteriology to medical undergraduates in the hands of the professor of pathology. But it is untrue and unfair to imply that pathological work in many university laboratories has in the past been "starved." Universities have had many claims to meet, and on the whole pathology has had its fair share; it may have been a Chittenden diet, which is stimulating, but it cannot be reasonably described as starvation. And to say that "research can only be satisfactory when carried out in a well-equipped laboratory with a qualified and adequately paid staff" is equally untrue and equally unfair both to the magnificent achievements of the past, and to the tolerable performances of the present. The real necessaries are imagination, brains, and industry. If the sentence I have quoted means only that research would get along better if it had more money it is a pity not to say so; exaggerated hyperbole is as much out of place in stating the claims of the pursuit of natural knowledge as it would be in the narration of its results. You repeat also the now familiar plaint about the immense gains which would accrue to medicine if professors of pathology, and so forth, had "free access to the wards and the status of physicians." I do not know whether you have considered how such a plan would work in actual practice. The objects in the wards to which access is wanted are sick people. Someone has to be responsible for doing the best that can be done to make them better, and that someone has got to have undivided control over their treatment. If pathologists are better at this kind of work than physicians and surgeons, they are even more remarkable people than I have thought them to be—and probably worse pathologists. For from the point of view of the progress of pathology such an arrangement would be, avoiding hyperbole, quite a bad one. Pathology is a biological science, and there is a deal of it which has little or no immediate connexion, at the moment, with sick people. Turn over the pages of some of the great books in pathology—Cohnheim's Lectures, Barlow's General Pathology, the first volume of Adami, Bordet's Immunity. It is not within the compass of an ordinary human mind to make itself fit to live with such problems as are there raised, and to be the wise physician that the sick person wants at the same time. The great conceptions of chemistry have not often been born in steel or cement works; the great discoveries of pathology have seldom been made at the bedside. There are indeed not many of them; there might have been more if less of the energy of pathologists had been put into its technical applications. What medicine gains from pathology and what pathology gains from medicine—and both are very large—can properly be achieved by the encouragement and development of what we commonly call "clinical pathology"—i.e., the application to practical medicine of those parts of pathology which are technically useful. It is quite unnecessary to hamper the study of pathology on the one hand, or to hazard the well-being of the sick on the other.—I am, Sir, yours faithfully,

Radlett, May 16th, 1920. A. E. BOYCOTT.

SPECIFICITY AND EVOLUTION IN DISEASE.

To the Editor of THE LANCET.

SIR,—In the retrospect contributed under the above title, Sir William Collins does good service in again raising the issue as to whether or no we have yet realised the importance of evolutionary processes in the causation of disease. He concludes, however, with the question, "Is not the theory of specificity of disease swallowed up in the larger theory of evolution?" and there seems an implied suggestion that the theories are mutually antagonistic. Is this really the case? In a consideration of the factors involved in the spread of bacterial infection,[1] I was recently led to suggest, on experimental and theoretical grounds, that a possible explanation of the epidemic spread of disease might be

[1] The Spread of Bacterial Infection, Goulstonian lectures, 1919 THE LANCET, 1919, ii., pp. 1 *et seq.*

found in a progressive variation of the causative virus, itself determined by changes in its environment; and a tentative hypothesis was advanced with regard to the causes and character of such a variation.

In considering some of the possible deductions from such a theory, it was pointed out that—

"It might, perhaps, be supposed that the acceptance of such a view as this would involve the belief that any bacterial parasite, given the requisite environmental conditions, might give rise to epidemic disease. Neither clinical nor bacteriological experience would, however, lend any support to such a view. ..... It would seem that we are dealing with a more or less specific capacity for variation, analogous to the acquired capacity for bringing about certain fermentations, which has been studied by Penfold and others. As the result of certain environmental changes the bacterial parasite will vary in a particular direction; but the ability to react in this way must be regarded as something inherent in the organism itself."

Thus an evolutionary hypothesis, in which especial emphasis is laid on changes in environment, does not exclude a belief in specificity, provided that this doctrine be not applied with an unintelligent rigidity. There is little evidence that we have fallen into error in believing that a given "disease" is caused by a specific organism, or sometimes by one or more of a definite group of organisms, and that in their absence the "disease" cannot occur. There seems reason, however, for thinking that we have not attributed sufficient importance to differences between various "strains" or "races" of a given bacterial species, or to the preponderating influence of environment on the evolution of those strains of the parasitic species which produce infection of the host. The future of preventive medicine would seem to be closely bound up with the acquirement of a fuller knowledge of the factors concerned in the production of such variations, and of the nature of the differences produced. An excellent example of the type of inquiry which will yield the data on which we must build is afforded by the admirable studies of Dr. A. Stanley Griffith on the types of *B. tuberculosis* isolated from various lesions in man.

The benefit that would most certainly accrue from the investigation of pathological problems on a wider and more comparative basis than is at present practised was pointed out by Sir Clifford Allbutt some months ago in a letter to the *Times*. If research and teaching could be established on the lines he indicates, there is little doubt that a decisive advance would be made along the path that will one day lead us to the conquest of infective disease.—I am, Sir, yours faithfully,

W. W. C. TOPLEY.

Institute of Pathology, Charing Cross Hospital, May 15th, 1920.

ANEURYSMAL VARIX IN THE NECK.

To the Editor of THE LANCET.

SIR,—A woman, aged 71, had a fall some years ago while cleaning a window. The frame broke and she fell backwards with frame and window on her. Nothing was noticed at the time in the neck, but she had glass removed from the face. Recently she developed an aneurysmal saccular swelling about the middle of the right transverse cervical artery, causing much pain and throbbing. The artery was tied by me near its origin on March 23rd last and the existence of a large expanded vena comes noted, which filled up with each beat of the artery. This sac has quite disappeared, but a fortnight ago aneurysmal swelling commenced in the inferior thyroid artery of the same side close to the clavicle and behind the sterno-mastoid muscle. As this aneurysm is so close to the origin of the artery to its parent trunk it would appear that further operation is impossible, especially in view of the patient's age. My friend, Mr. W. R. Williams, and I came to the conclusion that palliatives were now the only resource. The first part of the subclavian has, I believe, never been tied. If it were, what degree of collateral circulation would there be? I am writing this as I believe aneurysm of the thyroid axis and its branches are not common and aneurysmal varix very rare.

I am, Sir, yours faithfully,

May 17th, 1920. E. C. B. IBOTSON.

PROFESSIONAL SECRECY AND VENEREAL CLINICS.

To the Editor of THE LANCET.

SIR,—As it must be most distasteful to the medical officers of venereal disease clinics to be compelled in the courts to reveal their patients' conditions, would not a simple procedure avoid the possibility of this? The name of the patient is of no consequence to the medical officer. I should suggest that the registrar, or clerk, or nurse at the clinic receive directions to give to each patient a number, which would be written on their attendance cards previous to their seeing the medical officer; which number would on no account be changed during the whole course of treatment. Then the question of the name of the patient need not arise in the clinic at all and the position of both medical officer and patient would be more satisfactory; and there would be less hesitancy on the patient's part of availing himself or herself of the help held out by the Ministry of Health. I am, Sir, yours faithfully,

Dover, May 15th, 1920. F. A. OSBORN.

*** The plan has been suggested by others. The course of public and individual justice may make it necessary that the venereal state of a particular person at a particular time should be medically certified.—ED. L.

THE CULTIVATION OF THE MENINGOCOCCUS.

To the Editor of THE LANCET.

SIR,—In THE LANCET of March 27th Dr. William A. Muir, in a letter bearing this title, commented upon my article on the Univalent Serum Treatment of Cerebro-spinal Fever which appeared in your issue of March 13th. Since I do not have the opportunity of seeing many cases of cerebro-spinal fever at present, I determined that I would not reply until I had treated at least another case. I have now done so. It confirms in all essential particulars the points made in my article.

Regarding the cultivation of the meningococcus, I have again been able to obtain a sufficient growth of the meningococcus on ordinary "coagulated blood serum" slopes within 20 hours of inoculation of the tubes. This was done both during the primary attack and during a relapse which occurred about three weeks after the primary attack had subsided. The growth was in each case sufficient for the purpose of carrying out the test for type by the microscopic method. It may be well to state that in each case about 1 c.cm. of cerebro-spinal fluid was allowed to run directly from the lumbar-puncture needle into the warmed culture-tubes, and the tubes were incubated within ten minutes. In control-tubes inoculated with only a few loopfuls of the fluid no growth occurred. In connexion with the relapse above quoted, direct microscopic examination of the fluid showed numerous pus cells, but no organisms, and yet, in culture, about a dozen colonies were available the next morning (20 hours).

Regarding agglutination, I again found the microscopic method to be sufficient to establish the diagnosis of Type I. of the disease. The only difference from my previous case was that the positive result was rather longer in appearing (six hours), and was very marked indeed in 24 hours. Comparatively, any tendency to agglutination which occurred with the other sera (and that affected Type II. only) was absolutely negligible. Any ordinary observer would have had no difficulty in pointing to Type I. as the reacting serum. I have no doubt that the macroscopic method is more accurate and more reliable. But here it is not necessary to determine the end-point of agglutination capacity of a serum, but merely to determine, given four high-titre sera, which of them is the chief or only reacting one. If low dilutions are put up, this, in my experience, can be done; and the test is an easier and more familiar one to most workers in the small laboratories attached to fever hospitals.

Regarding the administration of the homologous serum I have not found the delay in diagnosing the type of the disease to be sufficient to put the method out of use. In practice I have found Type I. to be the common type occurring in this area, and each case I have seen has presented almost identical and distinguishing clinical features. In such circumstances I have since my first case given the homologous serum first and diagnosed the type afterwards (within 24 to 48 hours—not a serious delay in this type of case). The response to the homologous serum treatment has been nothing short of marvellous. I have, of course, no

objection to the use of the pooled sera of Types I. and II. until the diagnosis is established, but I hold that it is better to give the direct treatment if possible.

It may be of interest to mention that I have been informed by Dr. A. T. MacConkey, of the Lister Institute, that the particular batch of Type I. serum I have used in these cases was the pooled sera of nine horses and was prepared in July, 1918, almost two years ago.

I am, Sir, yours faithfully,

Motherwell, May 12th, 1920. H. STANLEY BANKS.

THE CONTROL OF VENEREAL DISEASE: THE MISSION OF HOPE.

To the Editor of THE LANCET.

SIR,—May we, through your columns, make an earnest appeal for financial help in connexion with the opening of a new isolation home in London for the treatment of venereal disease? Amongst the 400–500 cases of unmarried mothers of the better class whom we receive every year in our maternity homes and hostels a considerable proportion are tainted to a greater or less degree. At the present time we are constantly confronted by the urgent need for isolation of these, as well as of a number of infants who are also infected. On the advice of the Ministry of Health a suitable house has been purchased in a healthy district of South London through the kind gift of an individual donor, and the London County Council have agreed to make a generous contribution to the cost of maintenance. So far as its size will permit all cases, both of mothers and children, will be isolated here, and will receive treatment in the out-patient departments of various metropolitan hospitals.

We are greatly handicapped, however, by shortness of funds for furniture and equipment with a view to the speedy opening of the home. The matter is really extremely urgent, and a sum of £500 is required immediately. We are anxious that the institution may do something to meet the menace of this terrible foe to the nation, and cordially invite the practical help of your readers to this end.

Yours faithfully,

G. H. HUBBARD, V.D.,
Chairman.
JANET WALLIS,
Honorary Director.

The Mission of Hope (Incorporated), 30, Denman-street, London Bridge, S.E.1.

THE RELATION OF GENERAL MEDICINE TO OPHTHALMOLOGY.

To the Editor of THE LANCET.

SIR,—Mr. C. Higgens, in his letter in your issue of May 1st, appears to have misunderstood the object of my paper, which was, as the title indicated, not primarily for the "help of the ophthalmic surgeon," as he states, but for the "advancement of ophthalmology" and the benefit of our patients. He opposes the appointment of ophthalmic physicians on the extraordinary ground that it would be of "greater assistance to medicine than to ophthalmology." Now, I ask, what higher object could ophthalmology have than to be of assistance to general medicine? Ophthalmology is not a science apart from general medicine and in competition with it. Surely it should be our highest aim to contribute to the advancement of medical science as a whole. On it we depend for most of our knowledge and our ultimate diagnosis and treatment, and I hold that we neglect our opportunities of repaying something of the debt we owe to general medicine by denying the physician the opportunity of the continuous investigation of those obscure cases of disease in which the eye symptoms predominate and are the chief evidence of constitutional disease. By the limitations of our training and practice we are incapable of carrying out these investigations ourselves, and we refuse to the physician the opportunity which can only be obtained in our ophthalmic hospitals.

I am, Sir, yours faithfully,

Wimpole-street, W., May 17th, 1920. RAYNER D. BATTEN.

PROPOSED DEMOLITION OF CITY CHURCHES.

To the Editor of THE LANCET.

SIR,—If the proposed demolition of certain City churches is carried out, memorials in them to the following physicians and surgeons will disappear:—

All Hallow's, Lombard-street.—Dr. Edward Tyson, F.R.C.P., F.R.S., the "Carus" of Garth's "Dispensary."

St. Botolph, Aldersgate.—Two distinguished medical men are buried here, and their memory perpetuated upon their monuments: (1) Sir John Michaelthwaite, surgeon to Charles II.; (2) Dr. Francis Bernard, physician to James II. and to St. Bartholomew's Hospital.

St. Dunstan's-in-the-West contains a tablet with a long Latin inscription to a foreign practitioner, Albert Otho Faber, who died in 1684, and who was upon the medical staff of Charles II.

St. Vedast, Foster-lane.—Sir Thomas Browne, author of the "Religio Medici," was baptised there.

I am, Sir, yours faithfully,

S. D. CLIPPINGDALE.

Holland Park-avenue, May 17th, 1920.

The Services.

R.A.M.C. COMMISSIONS.

THE War Office announces that a limited number of commissions in the Regular Royal Army Medical Corps will be given at an early date to officers who are at present serving in the army or who have held commissioned rank during the war. Intending candidates, who will be required to fulfil the undermentioned conditions, should write for forms of application and further particulars to the Secretary, War Office (A.M.D.1), Cornwall House, Stamford-street, London, S.E.1. Officers who are still serving should submit their applications through the usual official channels.

Following are the conditions of service:—1. Candidates must be registered under the Medical Acts now in force in the United Kingdom. 2. Be under twenty-nine (29) years of age. Previous commissioned service, if as a medical officer of the Royal Army Medical Corps, will count towards seniority promotion and retired pay. Commissioned service other than as a medical officer will count only towards retired pay. The period of any such service may be deducted from an applicant's age if this is over twenty-eight (28) years. 3. Be pronounced fit for general service by a military medical board.

The rates of pay are as laid down in Army Order 324, an extract from which is appended.

Army Medical Service.	Per day. £	s.	d.
Major-General	4	10	0
Colonel	3	5	0
Lieutenant-Colonel	2	10	0
,, after 20 years' total service	2	12	6
,, ,, 25 ,, ,,	2	15	0
Major	1	15	0
,, after 15 years' total service	2	0	0
Captain	1	5	0
,, after 5 years' total service	1	7	6
,, ,, 10 ,, ,,	1	10	0
Captain, holding higher rank by Brevet, in addition	0	2	0
Lieutenant	1	0	0

The rates of allowances, gratuity, retired pay, &c., will be communicated to intending candidates.

ROYAL NAVAL MEDICAL SERVICE.

Surgeon Lieutenant-Commanders to be Surgeon Commanders: A. T. Rivers, C. J. Aveling, J. M. Hayes, P. B. Egan, F. H. Stephens, S. Bradbury, K. H. Hole, G. F. Syms.

ROYAL ARMY MEDICAL CORPS.

Lieut.-Col. F. S. Walker retires on retired pay.

Lieutenant-Colonels and Brevet Colonels relinquishing the acting rank of Colonel: J. C. Connor, J. A. Hartigan.

Major H. H. J. Fawcett, Temp. Major W. E. Home, Temp. Capts. J. R. C. Greenlees, A. J. Blake relinquish the acting rank of Lieutenant-Colonel.

Major T. E. Harty to be acting Lieutenant-Colonel.

Major P. J. Marett to be temporary Lieutenant-Colonel whilst specially employed.

Capts. S. Fenwick, T. J. Hallinan, Temp. Capts. N. A. A. Hughes, C. C. Forsyth, J. E. Thompson, and C. R. B. Von Bruan relinquish the acting rank of Major.

Capts. P. J. Ryan and E. A. Strachan to be acting Majors.

Capt. J. J. Molyneaux is placed on the half-pay list on account of ill-health.

T. W. Mason, late temporary Captain, and J. P. Bonfield, late Captain, Can. A.M.C., to be temporary Captains.

Officers relinquishing their commissions:—Temp. Major R. H. Bremridge (retains the rank of Major). Temp. Capt. F. R. Brown (granted the rank of Major). Temporary Captains retaining the rank of Captain: G. W. Ronaldson, F. B. Macdonald, F. B. Pinniger, T. S. Allen, T. E. Banister, E. L. Hopkins, P. S. Blaker, R. C. T. Evans, W. Fleming, R. W. D. Hewson, J. A. Ireland, J. A. Gilfillan, H. M. Drake, C. G. Whorlow, H. H. McClelland, P. C. Davie, G. V. Fiddian, T. Craig, R. Gellatly, J. P. Grainger, E. H. Dendy, C. R. B. Eyre, J. W. Steel, H. Daw, H. A. Lane, W. A. McLeod, J. W. Riddoch, C. K. T. Hewson, A. J. Beattie, T. Perrin.

Oversea Forces: South African Medical Corps.

H. Wolff to be temporary Captain.

The undermentioned relinquish their temporary commissions on account of ill-health:—Lieutenant-Colonels retaining the rank of Lieutenant-Colonel: P. S. Clark, R. L. Girdwood. Major W. Gilbert (granted the rank of Lieutenant-Colonel). Majors retaining the rank of Major: J. Hunter, R. C. M. Hoare, F. S. Jones, F. Pershouse, P. St. J. Wilkinson. Captains retaining the rank of Captain: A. P. M. Anderson, C. J. Battle, C. P. Bligh-Wall, T. L. Blackburn, I. J. Block, H. J. Brady, A. H. de W. Budler, T. P. Dowley, J. Duncan, H. Fox, C. Grant, A. L. Gurney, E. Hill, T. J. Howell, E. W. Ingle, A. M. B. Jassinowsky, A. H. Lawrence, R. L. Lloyd, J. J. Louwrens, G. M. MacKay, P. E. Millard, J. A. Mulvany, J. D. Murdoch, W. Paisley, P. Parnell, W. A. Rail, J. Rauch, C. D. Roberts, J. Rose, C. L. Seccombe, S. F. Silberbauer, St. J. Stanwell, L. V. Tebbs, J. C. Venniker, J. R. Whyte, H. Wolff. Captains and Dental Surgeons retaining the rank of Captain: J. Figdor, S. M. Macpherson, C. B. Woolf.

SPECIAL RESERVE OF OFFICERS.

Capt. T. G. Fleming relinquishes the acting rank of Major.

Capts. F. E. Feilden and J. I. Watson relinquish their commissions and retain the rank of Captain.

TERRITORIAL FORCE.

Lieut.-Col. (Bt. Col.) W. Howorth, T.D., resigns his commission and retains his rank, with permission to wear the prescribed uniform.

Major A. Carless resigns his commission and is granted the rank of Colonel.

Major (Bt. Lt.-Col.) (acting Col.) H. A. Leebody relinquishes the acting rank of Colonel on vacating the appointment of Assistant Director of Medical Services.

Capt. (Bt. Major) C. W. Rowntree resigns his commission and retains the rank of Captain and Brevet Major.

Capt. R. Burgess resigns his commission and is granted the rank of Lieutenant-Colonel.

Capts. C. C. Philip, T. P. Edwards, and C. Jephcott resign their commissions and retain the rank of Captain.

Major Sir A. W. Mayo-Robson, 3rd London General Hospital, and Major A. Carless, 4th London General Hospital, are restored to the establishment on ceasing to hold temporary commissions in the Army Medical Service.

Sanitary Service: Capt. L. R. Tosswill to be Major.

TERRITORIAL FORCE RESERVE.

Lieut.-Col. (Bt. Col.) H. W. Webber resigns his commission and retains his rank.

ROYAL AIR FORCE.

Capts. H. J. Leviseur and W. G. Robertson are transferred to the unemployed list.

INDIAN MEDICAL SERVICE.

Lieut. P. J. Walsh (since deceased) to be Captain.

The King has approved of the retirement of Major F. N. White, C.I.E.

ROTUNDA HOSPITAL, DUBLIN, VERSUS THE INCOME-TAX COMMISSIONERS.—Judgment has now been given in the House of Lords in a lawsuit between the Commissioners of Inland Revenue and the governors of the Rotunda Hospital. The hospital has had since its foundation, as part of the hospital buildings, a suite of entertainment rooms from the rent or hirings of which it has drawn a substantial income. For many years in the early history of the hospital the rooms were the fashionable assembly rooms of Dublin, and until some 20 years ago they were commonly used for balls and concerts of high standard. The ingenious Bartholomew Mosse, who founded the hospital, had looked to this source for an important part of the income of his great foundation. A year or two ago the income-tax authorities demanded that the governors should pay income-tax under Schedule D on earnings of the entertainment rooms. The claim was resisted, and the Irish courts in several judgments supported the position taken by the governors of the hospital. The House of Lords has now reversed these decisions, and has given judgment in favour of the income-tax authorities.

Parliamentary Intelligence.

HOUSE OF COMMONS.

TUESDAY, MAY 11TH.

Back Pay in the Royal Air Force Medical Service.

Mr. DENNIS HERBERT asked the Secretary for War and Air if he was aware that great hardship and much discontent was being caused among members of the medical service of the Royal Air Force by the delay in payment of back pay, now many months overdue; and if he would take steps to see that these overdue payments should be made at once. Mr. CHURCHILL replied: The arrangements for remustering Royal Air Force medical personnel to the new rates of pay have been under preparation for some time and the necessary order was issued last week.

Vaccination Statistics.

Mr. WILLIAM THORNE asked the Minister of Health whether, during the past 10 years, fewer children had been vaccinated in England and Wales than in any previous decade of the statistical history of vaccination; whether, during the same 10 years, there had been fewer small-pox deaths recorded than in any previous decade; and, if so, whether he would give instructions to his department to publish them widely so that the misapprehensions of the position, which were widespread in official medical circles, might be removed.—Dr. ADDISON replied: The answer to the first two parts of the question is in the affirmative. The statistics as regards vaccination and small-pox have been published year by year in the reports of the Local Government Board, and I am not aware of any misapprehension of the position in official medical circles. But I may point out that a consideration of these statistics without regard to other relevant facts may result in a misapprehension of the protective value of vaccination against small-pox. This matter was referred to recently in the Forty-eighth Annual Report of the Local Government Board (Medical Supplement), 1918-19, Cmd. 462.

Medical Students retained in Mesopotamia.

Major GLYN asked the Secretary for War and Air whether War Office Telegram, No. 39,313 of March 19th, 1920, Mob. 2, stated that all non-regular officers were liable to retention beyond April 30th, 1920, irrespective as to whether they did or did not volunteer service; whether in the case of medical students especially whose services were being retained in Mesopotamia, this War Office instruction was a reversal of the policy laid down in a speech delivered by him on Feb. 23rd, in which it was stated that all such officers would be demobilised by the end of April; and whether in these circumstances he would give special consideration to medical students who were desirous of immediately returning home to continue their studies enabling them to qualify for the medical profession.—Mr. CHURCHILL replied: The telegram mentioned stated that non-regular officers may be retained beyond April 30th, 1920, provided that the following conditions were fulfilled: (*a*) They fill an appointment within an authorised establishment; (*b*) no regular officers are available to replace them; (*c*) it is quite impossible to dispense with their services without relief. The telegram also stated that as soon as regular officers are available to replace them all non-regular officers must be demobilised. In my speech on Feb. 23rd last I referred only to the release of conscripts. I would remind the honourable and gallant Member that officers hold their commissions during His Majesty's pleasure. At the same time, every effort has been, and is being, made to replace temporary officers, and I regret that I am unable to take any exceptional action in the case of medical students.

WEDNESDAY, MAY 12TH.

English Medical Officers in India.

Sir W. JOYNSON-HICKS asked the Secretary for India if he could state the number of officers of the Indian Medical Service, native and European, in 1914 and 1919; how many of each race were gazetted in 1919; and what steps he was taking to make the service attractive to English doctors.—Mr. MONTAGU replied: In 1914 the number of officers in the Indian Medical Service was 706 Europeans and 63 Indians. In December, 1919, excluding officers holding temporary commissions, there were 650 Europeans and 80 Indians. During 1919 25 Europeans and 21 Indians were appointed to permanent commissions. In amplification of improvements already sanctioned, I hope to announce at an early date increased rates of pay and pension for the Indian Medical Service. I also recognise that it is essential to improve the facilities for leave and study, but no decision on these points can be effective until recruitment has brought the service nearer to its normal strength.—Sir W. JOYNSON-HICKS: If I put a question in a month's time, will the right honourable gentleman say if he hopes to be able to give the increases and

the other arrangements for improving the service?—Mr. MONTAGU: Yes, I hope so; and if my honourable friend will permit me, as soon as a decision has been reached, which, I hope, will be only a matter of a few weeks, then I will let him know.

Inter-departmental Committee on Tuberculous Soldiers.

Major BARKER asked the Minister of Health whether he had yet considered the proposal of the Inter-departmental Committee on Tuberculous Soldiers; and whether he could state which of these suggestions was being adopted.—Dr. ADDISON replied: The answer to the first part of the question is in the affirmative. The capital grant-in-aid of the provision of additional sanatorium and hospital accommodation for tuberculosis has been increased to £180 per bed and considerable extensions of the existing accommodation are being made. Facilities for the training in suitable occupations of ex-Service men suffering from tuberculosis are in course of being provided at existing sanatoriums at an estimated cost of £250,000; and a scheme for the provision of village settlements for these men and their families has been worked out, and is now under consideration by the departments concerned.

Maternity and Child Welfare.

Mr. WATERSON asked the Minister of Health if he was aware that many municipal authorities found it impossible to develop the work of maternity and child welfare as it ought to be developed because of the heavy financial burden it entailed; and, under such circumstances, could he make any recommendations to the Government for financial assistance to carry out a national obligation, and from which the State would benefit.—Dr. ADDISON replied: The Government already distribute through my department a grant of half the expenditure of local authorities and voluntary agencies on maternity and child welfare.

Hospital Transport in Egypt.

Mr. RUPERT GWYNNE asked the Secretary for War whether he was aware that a number of officers and men medically boarded for transfer to the United Kingdom after several years' service abroad were being retained in Egypt because no hospital ship was available to transport them, and that owing to the hot weather prevailing in Egypt at the present time their health was suffering and some of them might die in consequence of the delay; whether, while means could not be found to transport our British sick to the United Kingdom, a hospital ship was being used to repatriate Turkish prisoners from Egypt to Turkey, and other hospital ships to transport Russian refugees; and whether he would see that priority was given to our men suffering from the climate, and that arrangements were made for their immediate removal.—Sir A. WILLIAMSON (Financial Secretary to the War Office) replied: No invalids have been held back in Egypt owing to a hospital ship not being available. A hospital ship is allotted permanently for the evacuation to the United Kingdom of invalids from the Mediterranean garrisons, and is dispatched to the United Kingdom whenever the number of invalids warrants a sailing. This ship has been used for the conveyance of sick Turkish prisoners of war from Egypt to Turkey between its voyages to the United Kingdom, but I am advised that it has only been employed in this manner when the number of British invalids for transportation to the United Kingdom did not warrant its immediate return to the United Kingdom, and that its use on this service has in no way delayed the evacuation of British invalids.—Mr. GWYNNE: Is the right honourable gentleman aware that at present there are men urgently waiting to come home, and will he give orders for a ship to bring these men home at once?—Sir A. WILLIAMSON: I do not think that can be possible. Ships can only bring them home when there are enough men to form a shipload. We cannot send a ship for 20 or 30 men.—Mr. GWYNNE: Does the right honourable gentleman mean that men who have served four or five years should be left out there to die rather than bring them back home?—Sir A. WILLIAMSON: No Sir, that would be quite an incorrect representation of the case. A ship is sent whenever there are enough men to bring home. The intervals are not so long as the honourable Member suggests.—Mr. GWYNNE: How many dying men are enough to justify sending a ship?—No answer was given.—Earl WINTERTON: Is the right honourable gentleman aware that there are a large number of passengers who are coming home on these ships now who could be taken off and these invalids put on board? Is he aware that men out in Egypt who have been ordered to be sent home two or three years ago have not yet been sent home?—Sir A. WILLIAMSON: I am not aware that passengers are brought in hospital ships. I think that the hospital ships are confined to hospital purposes. If the suggestion is that that is not so, I will inquire into the matter.—Mr. GWYNNE: Will the right honourable gentleman inquire into the cases of the men that are out there now?—Sir A. WILLIAMSON: Yes.

Emergency Coal-supplies in Cases of Illness.

Mr. JEPHCOTT asked the President of the Board of Trade whether he was aware that recently in one family in Ashton-under-Lyne three children died in the course of a week after suffering from measles, and that it was believed the deaths were partly attributable to lack of warmth through the shortage of coal; if he had any information that equally serious results were occasionally occurring throughout the country; and whether a more abundant distribution of household coal could be rendered possible by reduced exports or other means.—Mr. BRIDGEMAN (Parliamentary Secretary to the Board of Trade) replied: I have no information which supports the suggestion that deaths in this country have been directly caused by shortage of coal, but it would be a matter for great regret if such shortage had been a contributory cause. It is a rule that any person who can obtain a medical certificate that coal is needed in a case of illness should be entitled to obtain from a merchant a supply of emergency coal forthwith. As I have already informed the House on several previous occasions it has been the policy of the Government to ensure home supplies before allowing export of coal.

THURSDAY, MAY 13TH.

War Gratuity to Nursing Sisters.

Captain THORPE asked the Secretary of State whether there was any reason why the nursing sisters employed at the Nell Lane Military Hospital, West Didsbury, Manchester, should not be paid their war gratuities; and whether he would authorise the immediate payment of gratuities to all nurses who were duly qualified to receive them.—Sir A. WILLIAMSON replied: The Guardians of Manchester Union, by whom the nurses in question were employed, have been invited to pay the gratuities due on behalf of the War Department, but prefer not to do so. Steps are being taken to make payment direct.

FRIDAY, MAY 14TH.

National Health Insurance Bill: Removal from the Panel.

The House considered the National Health Insurance Bill as amended in Standing Committee.

Captain ELLIOT moved a new clause providing that:—

(1) Any medical practitioner aggrieved by a decision of the Minister, or of any special body through which the powers and duties of the Minister, under Section 15, Subsection (2) (b), of the Act of 1911, are exercised, to remove his name from any list of medical practitioners may appeal against the decision to the High Court, within the time, and in the manner, and on the conditions directed by the rules of court. (2) The cost of any such appeal shall be in the discretion of the court, and no appeal shall be allowed from any order or decision of the court in any such appeal.

He said that this was a right granted to medical practitioners in the 1911 Act which was apparently being taken away from them under this Act. If they were struck off the panel they had a right of appeal under Subsection 15 (b) of the 1911 Act. All the right of appeal they had now was to the Minister of Health. If a medical practitioner was struck off the panel he was debarred from the treatment of what was already a majority of the population of the kingdom, and what would, if the dependents were brought within the scheme of the Act, become an overwhelming majority of the people. The medical profession did not consider it was fair that the bureaucracy should have this tremendous power over a medical practitioner, on the ground, first, that it would lead to a stereotyping of medical practice. Nobody would risk embarking on some individual line of treatment if he knew that any failure of that treatment would be brought before a committee of what were after all his trade competitors. In this case the bureaucracy was extending its power over the ordinary surgeon. A man who had the right to enrol his name on the panel of doctors should not have his name removed without at least a chance to appeal to the courts of law.—Lieutenant-Colonel FREMANTLE seconded the new clause. He said that there was a tendency for certain members of the profession to say, "We will not practise under these conditions. We will have nothing to do with this panel practice." That was a bad condition for any Government service to get into. He had a high opinion of his profession and of the Minister of Health, who was the judge in this matter, but thought it was wrong that medical men should be judged in a matter like this by such a court as was suggested.—Dr. ADDISON said the Bill did not extend the power of the bureaucracy.—Captain ELLIOT said that the Minister was a new Minister of the Crown, and here was a new bureaucracy.—Dr. ADDISON said that there was no word in the Bill at all which related to the conditions of the removal of the medical man from the panel. The statement therefore that there was in this Bill an extension of the power of the bureaucracy was inaccurate *in toto*. When a complaint was made under the original Act if a medical man was to be removed from the panel it had to be proved that he was doing something which was prejudicial to the efficiency of the service, and it had to be

a very grave matter. In the next place, the case had to go before the Finance Committee, which was a lay body, not a body of jealous fellow medical men.—Colonel FREMANTLE: Are these words true, "This will apply only after an inquiry by his own professional brethren in the first place"?—Dr. ADDISON said that before the Insurance Committee stated their case they referred it to the Medical Committee to see if there was a case to be stated. But the Medical Committee did not judge the matter in any way at all. If there was a case at all it went to a tribunal set up in the original Act, consisting of two medical men who were experts not in the man's own area, and presided over by a barrister or solicitor. So that the jealous fellow practitioner did not appear. That body now reported to the Ministry of Health instead of to the Insurance Commissioners, who had now been absorbed in the new Ministry. There was nothing to compel a medical man to come off the panel. But Parliament never intended, he was sure, that there should be created a statutory vested interest. He had been Minister of Health for more than a year and had never had a single case come up to him yet. A case had to be very grave before it reached the Minister at all. This was a claim which had been practically condemned, and, if adopted, it would be copied in every other department, and would be most prejudicial to the interests of the public service. The medical men knew that they were very fairly treated indeed, and there was every facility for their case being inquired into.—Dr. MURRAY supported the amendment.—Major BARNES thought that the right honourable gentleman might set a good example to the rest of the Government by yielding the point.—Mr. ROBERTS thought that members of the medical profession were quite capable of looking after themselves and safeguarding themselves against injustice. As no power was now being withheld, and as no injustice as far as they could ascertain had yet arisen, a dangerous precedent would be set up if this amendment were passed.—Major FARQUHARSON said if it should happen that a trade competitor were serving upon the Committee when a doctor was appearing to answer a charge, he had sufficient faith in his profession to feel sure that such a person would withdraw from the inquiry. If the Minister in the exercise of his Ministerial capacity ever did a thing or caused a condition to arise over which a doctor would be "aggrieved" in the technical sense of the 1911 Act, the proper place to deal with him was in that House.—Captain ELLIOT said that it was impossible to legislate under these conditions—it was now after 1 o'clock in the morning—and he therefore withdrew his amendment.—After further discussion the proposed new clause was negatived.

Discontinuance of Sanatorium Benefit.

Lieutenant Commander KENWORTHY moved to omit Clause 4 of the Bill which provides for the discontinuance of the administration of sanatorium benefit under the National Health Insurance Act, except in Ireland.—Dr. ADDISON, in opposing the amendment, explained that cases of tuberculosis were in future to be dealt with by one authority and claimed that the new arrangements would benefit working men. They desired that the treatment of tuberculosis should be extended where necessary. The whole scheme of which this was designed to be a part was to secure that one authority was competent to deal with all stages of tuberculosis. They only proposed to transfer the service from one set of people to another, but they proposed that the authorities should have added powers and added funds to perform this service for the benefit of the insured person.—Mr. MYERS thought that one of the most tragic features of the public health administration of the country was the complete inability of the medical profession of this country to effect an early diagnosis of tuberculosis, or at least their failure to disclose the fact that they had made the discovery. A year or two ago he attended an important conference in London addressed by Professor Beraneck, of Neuchâtel, a tuberculosis specialist from Berlin, and Sir Robert Philip, of Edinburgh. These medical experts set forth the fact that no medical man ought to administer tuberculin unless he was fully qualified in its elements. He would encourage early diagnosis of the disease on the part of the medical man, and as soon as diagnosis had been effected he would take the treatment out of the hands of the ordinary panel doctor absolutely and put it into the hands of a specific expert authority.—Dr. MURRAY said he did not agree with the aspersions cast upon the general practitioner. He would much prefer to be in the hands of the average general practitioner if he suffered from tuberculosis than in those of the best so-called expert in the country.—The amendment was negatived.

Dr. ADDISON moved to insert a new subsection to provide that the medical men on the panel should be authorised to ask the Insurance Committees to allow up to 2*d.* instead of 1*d.* per insured person to be allotted towards the administrative expenses of committees elected by medical practitioners and persons supplying drugs and medicines. It was their money, and it came out of their funds and not out of the general funds of the Act.—The amendment was agreed to.

The report stage of the Bill was concluded, and the Bill was read a third time.

Blind Persons Bill.

Dr. ADDISON, in moving the second reading of the Blind Persons Bill, said that the Bill was the result of a pledge given to the House recently during the discussion on a private Member's Bill on the same subject. In consequence of the very useful work of the Advisory Committee on the Blind a complete survey had been made of existing agencies for dealing with the blind, gaps in the present facilities had been discovered, and it had been possible to frame this Bill on sound lines. Steps had been taken to increase the preventive services against blindness, and Mr. G. Barnes had undertaken to preside over an important inquiry in regard to that matter. It was known that blindness in infancy was associated in a large degree with one form of venereal disease. Apart from preventive services, there was need that facilities should be provided for blind persons to learn some trade in order to earn a livelihood, and the Bill would enable local authorities to provide and maintain or to contribute towards the provision and maintenance of workshops, hostels, homes, or other places for the reception of blind persons within or without their area, and to combine to make further arrangements for promoting the welfare of the blind. The amount of the Government grant towards the expenses would be increased to 50 per cent. Provision would also be made by the measure that those persons who were so blind as to be unable to perform any work, and were 50 years of age, should be entitled to receive the pension to which, in ordinary circumstances, they would become entitled under the Old Age Pensions Act on reaching the age of 70 years. The Bill would render the War Charities Act, 1916, applicable to charities for the blind, and make it necessary that those charities should be registered and approved.—Mr. NEIL MACLEAN, speaking for the Labour Party, did not regard the Bill as adequate to meet the circumstances of the blind men. If the sympathies of the House were to be translated into benefits for blind people the Bill must be compulsory and not permissive in character. The Labour Party would not retard the second reading of the Bill, but when the Committee stage was reached they would do their best to remodel and strengthen it.—The Bill was read a second time.

MONDAY, MAY 17TH.

British-made Morphia.

Mr. GILBERT asked the President of the Board of Trade if he would state to which countries British-made morphia was exported during the year 1919, the amount and value of the morphia so exported to each country, what precautions were taken to secure the restriction of such morphia to medical or legitimate purposes; how many factories for morphia there were in Great Britain; and whether they were controlled and supervised in accordance with the provisions of the International Opium Convention of 1912.—Sir ROBERT HORNE replied: I am sending the honourable Member a statement of the recorded exports of morphia which will be printed in the official report, but I regret that those figures do not include exports through the post, particulars of which are not available. Licences are granted by the Board of Trade on the basis of the estimated legitimate requirements of the country of destination, and an arrangement is already in force in regard to certain destinations, and will, I hope, be extended to others—under which an application for a licence must be accompanied by a certificate from the appropriate Government authority in the country of destination that the drug is required exclusively for legitimate medicinal or scientific purposes, and will not be re-exported. I am aware of only three factories in Great Britain producing morphia. When the Dangerous Drugs Bill at present before the House is passed into law control over such factories will be exercised in accordance with the provisions of the Opium Convention.—Sir J. D. REES: Does the Government intend or endeavour to control morphia all over the world?—Sir R. HORNE: We cannot hope to accomplish such a vast undertaking.—Sir J. D. REES: But does not my right honourable friend's answer imply that we are to control the morphia from British factories in all parts of the world?—Sir R. HORNE: From British factories, certainly.

Vaccination and Small-pox.

Mr. WATERSON asked the Minister of Health if, in view of the opinion expressed by Dr. R. J. Reece on page 92 of the Medical Supplement of the Forty-eighth Annual Report of the Local Government Board that at any isolation hospital which was likely to receive small-pox cases the staff should always be protected beforehand by efficient revaccination, he would state what constituted an efficient revaccination, and how long it might be presumed to remain efficient; and whether, and if so what, steps had been taken by the Ministry of Health to inform those in charge of isolation

hospitals as to the views of the Ministry on the subject.—Dr. ADDISON replied: I am advised that efficient revaccination should result in the appearance of either vesicles, normal or modified, or papules surrounded by areolæ. If no such result is obtained, and some years have elapsed since the last successful vaccination or revaccination, the operation should be repeated if the person is especially liable to exposure to small-pox infection. A successful revaccination ordinarily protects those exposed to infection for many years against the occurrence of severe or fatal small-pox, and for a shorter period against the occurrence of a mild or modified attack. I am, however, advised that persons whose duties at isolation hospitals render them especially liable to exposure to small-pox infection should renew their protection by vaccination at least every ten years. These views are in accordance with generally accepted medical opinion, and I scarcely think it necessary to communicate them to those in charge of isolation hospitals.

Medical Services in the Navy.

The House went into Committee on the Navy Estimates, Sir E. CORNWALL in the chair.

On a vote of £677,300 for the expenses of medical services, including the cost of medical establishments at home and abroad, Sir D. MACLEAN asked for further explanation. They ought to be told why, while the numbers of the navy generally had gone down, the medical service showed no corresponding reduction, either in numbers or cost.—Sir J. CRAIG said it was impossible suddenly to drop from war conditions to peace conditions without going through a transition stage. He admitted, however, that something might be done to make the estimate a little clearer and he would promise to meet Sir Donald Maclean's wishes in regard to that.—Sir D. MACLEAN urged that the House should be given further information before the Report Stage.—Sir J. CRAIG said that this vote covered home and abroad shore services which were normally the same and not affected by the large reduction in the navy. He would, however, be glad to give any further information that was possible.—The vote was agreed to.

Medical News.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.—An extraordinary Comitia of the Royal College of Physicians of London was held on May 13th, Sir Norman Moore, the President, being in the chair.—On the nomination of the President Dr. James Taylor was appointed to represent the College on a committee being formed by the Minister of Health to investigate the causes of blindness and defective vision. The Members elected to the Fellowship at the Comitia held on April 29th (see THE LANCET, May 8th) were admitted. Diplomas in Public Health and Diplomas in Tropical Medicine and Hygiene were granted, jointly with the Royal College of Surgeons, to candidates whose names will be found in the pass-list given below.—The President then dissolved the Comitia.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—An ordinary meeting of the Council was held on May 13th, Sir George Makins, the President, being in the chair.—Professor Alexis Thomson was introduced, and after signing the by-laws and making the required declaration was admitted a Fellow of the College.—It was resolved to issue diplomas of Membership to 70 successful candidates.—In accordance with a report from the Court of Examiners it was resolved that the Council agreed with the Anatomical Society of Great Britain and Ireland in deciding not to depart from the old nomenclature for use in anatomical text-books and by medical men in general.—It was resolved to grant jointly with the Royal College of Physicians of London Diplomas in Public Health to nine successful candidates, and Diplomas in Tropical Medicine and Hygiene to 13 successful candidates.—The President reported that a letter had been received from the Lord Weardale, Chairman of the Committee for the "Save the Children Fund" of 26, Golden-square, W. 1, soliciting the help of Fellows and Members of the College, and stating that under their "professional assistance" plan any contribution made through the College would be devoted exclusively to feeding and tending children whose parents are surgeons. The President regretted that there were no corporate funds available from which a contribution could be made, but took the opportunity of calling the attention of Fellows and Members of the College to the appeal.—The President reported that he had sent a telegram of congratulation to Dr. Logie, M.D. Edin., 1842, L.R.C.S. Edin., 1841, on the occasion of the hundredth anniversary of the date of his birth on May 11th.

ROYAL COLLEGES OF PHYSICIANS OF LONDON AND SURGEONS OF ENGLAND.—At a meeting of Comitia of the Royal College of Physicians on April 29th and of the Council of the Royal College of Surgeons on May 13th diplomas of L.R.C.P. and M.R.C.S. were respectively conferred upon the following candidates who have passed the Final Examination in Medicine, Surgery, and Midwifery of the Conjoint Board, and have complied with the by-laws of each College:—

William Eric Hallamore Banks, Cambridge Univ. and St. Bart.'s Hosp.; William George Barnard, London Hosp.; Benjamin Faltas Behman, Univ. Coll. Hosp.; Julia Bell, Royal Free and St. Mary's Hosps.; Walter Bowler, Liverpool Univ.; Harold Currie Brayshaw, Edinburgh Univ; Osmond Hayman Brown, Charing Cross Hosp.; William Mark Brown, Guy's Hosp.; Kenneth Entwisle Bury, St. Thomas's Hosp.; John William Chadwick, Manchester Univ.; Isabel Martha Collier, Liverpool Univ.; John Joseph Philip de Chaumont, Charing Cross Hosp.; Purshottam Mulchand Desai, Bombay Univ. and London Hosp.; Kenneth Henry Doouss, St. Bart.'s Hosp.; Edward Ernest Elt, Charing Cross Hosp.; Roger Henry Emmett, Cambridge Univ. and St. George's Hosp.; Cecil Weldon Empey, London Hosp.; Gerald William Thomas Hunter Fleming, Durham and Charing Cross Hosp.; Louis Francois Regis Charles Laurent Folliet, Paris, Lyons, and Univ. Coll. Hosp.; Richard Kenrick Foulkes, King's Coll. Hosp.; Donald Goddard Garnett, Cambridge Univ. and St. Thomas's Hosp.; Arthur Christopher Vidal Gosset, Cambridge Univ. and St. Thomas's Hosp.; Arthur Edwards Gravelle, King's Coll. Hosp.; Egerton Charles Grey, Guy's Hosp.; Churchill Hector Gunasekara, Cambridge Univ. and Middlesex Hosp.; Edith May Hall, Royal Free Hosp.; Reginald Rowley Halsall, Manchester Univ.; Theodore Handel, King's Coll. Hosp.; Ranald Montagu Handfield-Jones, St. Mary's Hosp.; Tom Robert Ernest Hillier, Middlesex Hosp.; William Vincent Hughes, St. Mary's Hosp.; Donald Hunter, London Hosp.; Frank Carlton Jones, Manchester Univ.; Charles Ainger Kirton, Univ. Coll. Hosp.; Frans Hieronymus Kooy, Groningen Univ.; Wright Lambert, Middlesex Hosp.; George Valentine Chapman Last, Liverpool Univ.; William Alexander Low, St. Thomas's Hosp.; Ernest Lowe and Thomas Clyde McKenzie, Birmingham Univ.; Naguib Makar, St. Thomas's Hosp.; Margaret Ombler Meek, Cambridge Univ. and Charing Cross Hosp.; John Roderick Mitchell, Cambridge Univ. and St. Thomas's Hosp.; Bernard Molloy, Cork and Birmingham Univ.; George Geoffrey Newman, London Hosp.; Ahmed Othman, St. Thomas's Hosp.; Frederick Ferdinand Petersen, London Hosp.; Harold James Alexander Pollard, Cambridge Univ. and St. Bart's Hosp.; Henry Christoffers Powell, Charing Cross Hosp.; Reginald Francis Price, McGill Univ.; Joseph Proujansky, London Hosp.; Thomas Reed, Guy's Hosp.; Owen William Roberts, King's Coll. Hosp.; Isabella McDougall Robertson, Royal Free and St. George's Hosps.; Katherine Jane Shaw, Royal Free Hosp.; Ronald Cunliffe Shaw, Manchester Univ.; William Arthur Merrett Smart, London Hosp.; Harold Edward Smith, Sheffield Univ.; Arthur Twynham Spoor, Cambridge Univ. and St. Thomas's Hosp.; Edward Howard Strange, Cambridge Univ. and St. Bart's Hosp.; Canning Suffern, Cambridge Univ. and St. Thomas's Hosp.; Arthur Walford Taylor, St. Bart.'s Hosp.; James McWilliam Taylor, Western Univ.; Gifford Campion Thornton, Birmingham Univ.; Johan van Rooijen, Amsterdam Univ.; Robert Walter Warrick, Guy's Hosp.; Herbert Edward Williams, London Hosp.; Lucy Wills, Royal Free Hosp.; Joseph Marshall McCaldin Wright, Cambridge Univ. and King's College Hosp.; and Philip Richard Zinn, New York Univ. and Univ. Coll. Hosp.

Diplomas in Public Health were conferred upon the following nine candidates (including one woman) who have passed the requisite examinations:—

Eleanor Bourne, Sydney Univ. and Univ. Coll.; Monamy Aston Cornwall Buckell, Univ. Coll.; John Nairn Dobbie, Glasgow Univ. and Univ. Coll.; Harry Evans, Edinburgh Univ. and Univ. Coll.; George Alfred Duncan Harvey, Dublin and Royal Army Medical Coll.; George Dearden Jameson, Cambridge Univ. and St. Bart.'s Hosp.; William Simpson, St. Bart.'s Hosp.; James Garfit Wallis, London Hosp. and Haslar; and Graham Selby Wilson, Charing Cross Hosp. and Royal Army Medical Coll.

Diplomas in Tropical Medicine and Hygiene were also conferred upon the following 13 candidates from the London School of Tropical Medicine who have passed the requisite examinations:—

Mohamed Khalil Abdel-Khalik, John Scaife Armstrong, Carlo Basile, Alexander Kirkpatrick Cosgrave, Ernest Forrester-Paton, John Augustine Frendo, William Peat Hogg, Thomas Skene Keith, Alexander William Montgomery Harvey, Niels Nedergaard, Harold Edward Whittingham, Man Wong, and Edward Jenner Wood.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH, ROYAL COLLEGE OF SURGEONS OF EDINBURGH, AND ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.—At a recent examination of the Board the following candidates, having passed the First and Second Examinations, were admitted Diplomates in Public Health:—

Maurice Exell Willcock, Stanley Honeyman, George King, Ian Campbell Mackay, Ralph Johnston Tait, Margaret Allison Alexander, Thomas Macmillan Anderson, Philip Clermont Livingston, James Whitson Kemp Bruce, Herbert Frederick Wilfrid Adams, Edward Fow Fisher, Jessie Alexander MacLaren, Thomas Pearson Herriot, Alexander Bremner, and Andrew Gray Carment.

THE President of the French Republic has conferred the honour of Officer of the Legion of Honour on Professor Aldo Castellani, C.M.G., of the London School of Tropical Medicine, for his work on combined typhoid-paratyphoid and enteric-cholera vaccination, and other scientific investigations which have been found of utility to the Allied armies during the war.

UNIVERSITY OF LONDON.—**On May 19th, at a** meeting of the Senate, Dr. Russell Wells, the Vice-Chancellor, presiding, it was reported that an offer had been received from the President of the Board of Education of a site for central buildings immediately behind the British Museum.—At the Albert Hall on the same day degrees were presented to a large number of graduates, and in the evening at the Guildhall the graduates dined together, Dr. Russell Wells presiding, the Lord Mayor of London coöperating with him in receiving the guests. Interesting speeches were made by the Lord Chancellor and the President of the Board of Education.

NATIONAL COUNCIL FOR COMBATING VENEREAL DISEASES: APPOINTMENT OF TRAVELLING COMMISSIONS.—The National Council has been invited to despatch two commissions under the ægis of the Colonial Office, one travelling east and the other travelling west, so that the benefit of recent experience gained in this country may be made available in our colonies and dependencies. The commissions will each consist of one lay and one medical member, the latter to give post-graduate courses to the local medical faculties under the auspices of the various Colonial Medical Services. The tour is to begin in September and to last from six to eight months. On the western tour the medical commissioner would be required to demonstrate the Wassermann technique; although desirable, this would not be absolutely necessary for the eastern voyage. In addition to more technical medical instruction he would be invited to give addresses to lay audiences. Travelling expenses and a small honorarium are offered. The final selection of medical commissioners has not been made. Names of applicants are now being considered by a special committee, and should be sent to the N.C.C.V.D., 80, Avenue Chambers, London, W.C. 1.

There are still a few vacancies for the post-graduate course to be held by Mr. K. M. Walker at St. Bartholomew's Hospital Clinic on the Diagnosis and Treatment of Venereal Diseases on Thursday afternoons at 5.30 P.M. Any medical practitioner wishing to attend should send his name to the Secretary, N.C.C.V.D., at above address.

SOCIETY FOR THE PREVENTION OF VENEREAL DISEASE: A PARLIAMENTARY COMMITTEE.—A deputation of this society, consisting of Lord Willoughby de Broke, Sir W. Arbuthnot Lane, Sir James Crichton-Browne, Mr. Athelstan Rendall, M.P., Mr. W. Wansey Bayly, Miss Norah March, Dr. Jane L. Hawthorne, Dr. A. Mearns Fraser, and Captain W. E. Elliot, M.P., laid the views of the society before some 50 Members of Parliament at the House of Commons on May 12th. After hearing the policy of the society set forth, the Members present resolved to form themselves into a Parliamentary Committee with the object of furthering the aims of the society, more particularly in endeavouring (*a*) to obtain the support, both official and financial, of the Ministry of Health for the society's work; and (*b*) to obtain the repeal of the clause in the Venereal Disease Act, 1917, which forbids a chemist to recommend to the public or to expose for sale approved disinfectants for the prevention of venereal disease.

MANCHESTER CONFERENCE ON DISEASES OF THE TEETH.—A Congress on the Prevention of Diseases of the Teeth, promoted by the Food Education Society, was held in Manchester from May 13th to 15th to attack "the dental problem, which remains after ten years of the School Medical Service one of the most important, urgent, and difficult." The conference was opened by Sybil, Viscountess Rhondda. Sir William Milligan, who presided, said that the teeth of Jewish children were superior to those of Gentiles, and he suggested that differences of diet might be the cause of this. Professor Adami compared the teeth of people of this country unfavourably with those of Canada, and emphasised the need for such revision of the Dental Act of 1878 as would ensure that only fully qualified persons should be allowed to practise dentistry. He said that 10,000 additional qualified dentists were needed to care properly for the teeth of the country. Dr. Harry Campbell said that the state of our teeth, which were the worst of any nation's, should excite a feeling of shame and humiliation. At least nine-tenths of this dental disease was preventable. Mr. F. M. Holborn characterised pyorrhœa as the commonest disease in this country next to dental caries. Tooth-brushing as generally practised, especially if tooth powders and pastes—so much in use—were driven under the free margin of the gum tended to injure the gum at its junction with the teeth. Used in moderation a toothbrush was harmless, but it should be drawn from the gum towards the teeth to avoid forcing particles beneath the gum. Salt and soap were the safest cleansers. He commended the practice of certain African natives who used a small piece of thin wood to polish the teeth and remove adherent particles. The blind brushing of the teeth from side to side and up and down should be condemned. One speaker considered tolerance and indifference the cause of much disease. "We should make it understood that good teeth are necessary to good form." "Toothless gums are not natural even to age." According to Dr. J. Wheatley, "milk is an excellent food if taken with the proper precautions. If taken late at night without any other food it is the most dangerous food I know."

MEDICO-LEGAL SOCIETY.—**A meeting will be held** at 11, Chandos-street, London, W., on Friday, May 28th, at 8.30 P.M., when a paper will be read by Dr. T. H. G. Shore on "Sudden Deaths on Active Service."

Mr. G. Q. Roberts, M.A., secretary to St. Thomas's Hospital, will deliver a lecture on "Old London and the London Hospitals" at the hospital on Friday, May 28th, at 5.15 P.M. Applications for tickets should be made to the Secretary, League of Mercy, 29, Southampton-street, London, W.C. 2.

ROYAL INSTITUTION.—**On Tuesday next (May 25th),** at 3 o'clock, Major C. E. Inglis begins a course of two lectures at the Royal Institution on the Evolution of Large Bridge Construction; on Thursday (May 27th) Mr. William Archer delivers the first of two lectures on Dreams, with special reference to Psycho-analysis; and on Saturday (May 29th) Professor J. H. Jeans commences a course of two lectures on Recent Revolutions in Physical Science: (1) The Theory of Relativity; (2) the Theory of Quanta. The Friday evening discourse on May 28th will be delivered by Professor W. L. Bragg on Crystal Structure; and on June 4th by Sir Ronald Ross on Science and Poetry.

ST. MARYLEBONE GENERAL DISPENSARY: POST-GRADUATE COURSE ON INFANT AND CHILD WELFARE.—A course of 12 practical demonstrations on the Management and Feeding of Infants and Young Children will be given by Dr. Eric Pritchard to qualified practitioners on Tuesdays and Thursdays at the St. Marylebone General Dispensary, commencing Tuesday, June 1st. Opportunities will be afforded to those attending this course of visiting the Nursery Training School, 1, Wellgarth-road, Golders Green, on Saturday afternoons. Further information and tickets for the course (2 guineas) may be obtained from the Secretary, 77, Welbeck-street, Cavendish-square, London, W. 1.

POST-GRADUATE CLASSES AT NORWICH.—**The** demonstrations organised during the spring by the honorary medical staff of the Norfolk and Norwich Hospital have been well attended and much appreciated by qualified medical men in the city and neighbourhood. It is proposed to continue the demonstrations during the coming autumn and winter.

NORWICH MEDICO-CHIRURGICAL SOCIETY.—A clinical meeting of this society was held at the Norfolk and Norwich Hospital on May 4th, when the following cases and specimens were shown:—Mr. A. J. Blaxland: (*a*) Malignant Papilloma of Appendix causing Intussusception removed from man aged 63 years; (*b*) Sarcoma of Uterus from a woman aged 55 years; (*c*) Right Lobe of Thyroid showing great Parenchymatous Enlargement removed from a youth aged 20 years; (*d*) Left Lobe and Isthmus of Thyroid showing Multiple Cystadenomata removed from a woman aged 48 years. Dr. A. Crook: (1) Sections of Liver from (*a*) patient who died from puerperal eclampsia; (*b*) patient, full term pregnant, who died of acute pneumonia. (2) Specimen of Multiple Polypi of Cervix Uteri removed from a woman aged 61 years. Dr. W. A. Aldred: Specimen of Ruptured Tubal Gestation with Uterine Fibroid. Dr. S. H. Long: A case of Morphœa in a child aged 8 years. Mr. G. Maxted: (*a*) A case of Tumour of Iris in a girl aged 17 years; (*b*) a case of Severe Albuminuric Retinitis in a woman aged 30 years. Mr. Blaxland: A case of Osteo-chrondritis Juvenilis of Both Hip-joints in a boy aged 13 years (Perthes' disease).

TUBERCULOSIS SANATORIUMS FOR SUSSEX.—**Both** the East Sussex and the West Sussex County Councils have taken an important step towards the provision of a sanatorium for tuberculosis. On May 11th the East Sussex authority decided to acquire and adapt Darvell Hall at Robertsbridge at a cost of £23,500. Some 18 months have been expended in finding suitable premises, but the sub-committee entrusted with the work had no hesitation in recommending the Robertsbridge house, together with about 60 acres of land. Local authorities have reported their willingness to enter into agreements with regard to the scheme, and by this coöperation it is believed that the capital expenditure by the County Council will be reduced by about £3000. The Treasury grant of three-fifths of the cost will amount to £14,000. Two days later—on May 13th—the West Sussex authority with the same unanimity ratified a scheme involving the sum of £49,000. The premises and site concerned are Aldingbourne house and park in the delightful

Chichester-Goodwood district. Here again the finding of a suitable house and grounds had occupied much time. The Aldingbourne property includes 600 acres of land, which is to be let to ex-Service men as small holdings. The proposed institution is to provide 50 beds, and it is estimated that a grant of £180 per bed will be received from the Government. The place lends itself to future development by the erection of huts in the grounds, and the Ministry of Health states that other counties might arrange to send patients to fill any vacant beds. The county of Sussex is to be congratulated on progressive action.

THE King has approved the appointment of the Hon. Alexander Campbell, M.D., as a Member of the Legislative Council of Newfoundland; and of Dr. Wroughton Gerald Heath, senior medical officer, as a Member of the Executive Council of the Presidency of Montserrat.

THE Fife Education Authority decided last week to reaffirm the appointment of Robert Arno Krause, M.B., Ch.B. Edin., as their school medical officer. Objection had been raised to the appointment on account of Dr. Krause's recent German nationality, and the Scottish Board of Health had suggested his replacement. Dr. Krause, it was stated, had lived in this country since infancy, and was naturalised some years ago.

ROYAL MEDICAL BENEVOLENT FUND.—At the last meeting of the Committee, held on Tuesday, May 11th, 25 cases were considered, and £218 8*s.* voted to 17 of the applicants. The following is a summary of some of the cases relieved:—

Widow, aged 59, of lieutenant-colonel, R.A.M.C. who served in England and India and died in 1905. Applicant had an accident eight years ago and is now suffering from neuritis and her sight is failing, so she is unable to supplement her income by working. Has one son, married, and only able to contribute £15 a year. Has a pension of £90, £1 14*s.* from investments, £13 from friends, making a total income of £119 14*s.* Rent £45 10*s.* Voted £5, with leave to apply again in six months.—Daughter, aged 60, of M.R.C.S. Eng. who practised at Cardigan and died in 1875. Health very bad through overwork, which was voluntary, in an army canteen. She lives with a friend, and they share expenses. Applicant is a trained nurse. Income from shares, £26; from property, £25. Voted £12 in 12 instalments.—M.R.C.S. Eng., aged 79, widower, who practised at Kingston-on-Thames. Has two daughters, ages 43 and 41, living at home, the elder as housekeeper, the younger an artist, who earns a very precarious living. Two other daughters are nurses, and contribute £32 a year each towards the home. Other income from investments £120, the capital of which cannot be used. Rent and rates £54 9*s.* Applicant in a very delicate state of health, as are the two daughters living at home. Voted £26 in 12 instalments.—Daughter, aged 68, of M.R.C.S. Eng. who practised in London and Halifax and died when applicant was a child. Had an accident a few years ago and is now lame and unable to work. Only income an occasional gift from friends. Rent 7*s.* 6*d.* a week for one room. Relieved six times, £46. Voted £12 in 12 instalments.—Daughter, aged 35, of M.R.C.S. Eng. who practised in Yorkshire and died in 1906. Only income 21*s.* a year from investments. Suffers from bad health and is now in a nursing home, and her sister has to pay expenses, which she cannot afford to do. Applicant quite incapable of work. Relieved three times, £45. Voted £18 in 12 instalments.—Widow, aged 46, of M.B. Glasg. who practised at Sandbank, Argyll, and died in 1910. Has one son, aged 12, at school. Was left unprovided for, and is now making a living by letting rooms, from which she made £168 last year. Rent and rates £68. Finds she cannot manage owing to the high cost of living. Relieved once, £10. Voted £10 in two instalments.

Subscriptions may be sent to the honorary treasurer, Sir Charters Symonds, C.B., F.R.C.S., at 11, Chandos-street, Cavendish-square, London, W.1.

THE HOUSING PROBLEM IN BELFAST.—Mr. P. C. Cowan, chief engineering inspector of the Irish Local Government Board, opened an inquiry in the City Hall, Belfast, into an application by the Belfast Corporation for a loan of £2,000,000 for the purpose of carrying out a scheme under Part I. of the Housing (Ireland) Act, 1919, and Part III. of the Housing of the Working Classes Act, 1890; and the proceedings—sometimes very stormy—lasted three days. The Housing Committee of the City Council estimates that 5000 houses are now needed, but that 1500 would meet the immediate requirements. As only three tenders had been received for demonstration houses the corporation want to attack the problem by direct labour. 2260 applications have been made for houses through the town solicitor's department, and the average rent at which the houses were demanded was 6*s.* 9*d.* per week. Owing to the cost of building and the lessened output of labour, the better class of houses cannot be built, the corporation allege, at a rent the working classes will pay, and as a result they recommend, to keep down prices, the erection of terrace, not detached, houses. Some of the witnesses thought the corporation were taking too narrow a view of the situation, and urged that the best type of houses should be provided and the cost borne somehow, either by the State, the corporation, or the tenants themselves. A great deal of unpleasantness arose because some of the witnesses accused the Local Government Board of impeding the Housing Committee of the Belfast Corporation by red tape, while the inspector denied this and said the Local Government Board had not the information supplied which it required. He also found fault with the way Belfast was facing the housing problem, and said that the work of the Belfast Board of Architects was, in his opinion, most disappointing; and he declared that the corporation must submit further and carefully considered plans, so that the Local Government Board could not be accused of failing to do its part in seeing that the money was applied in the best way humanly possible.

Commenting on this inquiry, a Belfast correspondent writes: Apparently, so far as the housing scheme in Belfast is concerned, things have, as in many parts of England, come to an impasse. The Local Government Board wants a form of house which, the practical Belfast man says, cannot be built, unless the occupiers will pay a higher rent than they are prepared to do; and the corporation declines to accept what is believed will be a financial loss, leading to increased taxation. It is clear that the Government, the employers, and the Labour Party will have to take a greater share in the financial responsibility of the housing problem.

Appointments.

Successful applicants for vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

ALLAN, J., M.D. Edin., has been appointed Lecturer on Public Health, Westminster Hospital Medical School.

JOHNSTONE, W., M.D., B.Ch. Glasg., D.P.H. Camb., Medical Officer of Health and School Medical Officer, City of Peterborough.

POOLER, H. W., M.B., Ch.B.. M.R.C.S., L.R.C.P., Visiting Medical Officer to Morton District Hospital.

PYBUS, F. C., M.S., F.R.C.S., Assistant Surgeon to the Royal Victoria Infirmary, Newcastle-on-Tyne.

SUTCLIFFE, J., M.R.C.S. Eng., L.R.C.P. Edin., Resident Medical Superintendent of Cheadle Royal Hospital for Mental Diseases, Cheadle, Cheshire.

SYLE, E., M.B. Lond., M.R.C.S. Eng., House Surgeon at the Great Northern Central Hospital.

VAILE, T. B., M.R.C.S., L.R.C.P., Anæsthetist to the Cancer Hospital, Assistant Anæsthetist to the Italian Hospital, House Anæsthetist to the Royal Dental Hospital.

St. John's Hospital for Diseases of the Skin: HANNAY, M. G., M.D. Brux., F.R.C.P. Edin., and LYNHAM, J. E. A., M.D. Belf., M.R.C.P. Lond., Assistant Physicians; RIPMAN, C. H., M.D. Camb., M.R.C.P. Lond., Clinical Assistant to the Venereal Diseases Department.

Certifying Surgeons under the Factory and Workshop Acts: F. J. DOWDALL, M.B., B.Ch. N.U.I. (Hebden Bridge); METCALFE, B. B., M.R.C.S., L.R.C.P. Lond. (Liskeard); HARRIS, W. J. (Shaftesbury); WILLIAMS, R. A. H., L.R.C.P. & S. Edin. (Waterford); ROBERTS, E. H., M.B., B.S. Lond. (Menai Bridge); MONTGOMERY, A. W., M.B., B.S. R.U.I. (Kingston); WOLVERSON, J. A., L.R.C.P. & S. Edin., L.F.P.S. Glasg. (Wolverhampton).

Vacancies.

For further information refer to the advertisement columns.

Bath, Royal Mineral Water Hospital.—Res. M.O. £250.
Belgrave Hospital for Children, Clapham-road, S.W.—Hon. Radiographer.
Bethlem Royal Hospital, Lambeth-road, S.E.—Senior Asst. P. £600.
Birmingham General Hospital.—H.S. and Cas. H.S. £100.
Birmingham Union, Dudley-road Hospital.—Res. Asst. M.O. £365.
Birmingham, Yardley-road Sanatorium and Anti-tuberculosis Centre.—Second and Third Asst. Res. M.O.'s. £450 and £400.
Bolingbroke Hospital, Wandsworth Common, S.W.—H.S. £150.
Bradford Royal Infirmary.—H.S. £200.
Brighton, Royal Sussex County Hospital.—Jun. H.S. £130.
British Home and Hospital for Incurables, Streatham, S.W.—M.O. £150.
Bury St. Edmunds, West Suffolk General Hospital.—H.S. £200.
Canning Town Women's Settlement Hospital, Balaam-street, Plaistow, E.—Female Res. M.O. £150.
Carlisle, Cumberland Infirmary.—H.P. £250.
City of London Hospital for Diseases of the Chest, Victoria Park, E.—H.P. £100.
Deptford Metropolitan Borough.—Asst. M.O.H. and Tuberc. O. £600.
Derby County Borough Education Committee.—School Dentist. £450.
Doncaster Royal Infirmary and Dispensary.—Asst. H.S. £225.
Dorset County Council.—Asst. County M.O. £500.
Durham County Council, Maternity and Child Welfare.—Female Asst. Welfare M.O. £500.
Egyptian Government School of Medicine.—Med. Registrar. L.E. 600.
Elizabeth Garrett Anderson Hospital, Euston-road, N.W.—Female Clin. Assts.
Great Northern Central Hospital, Holloway-road, London, N.—Res. M.O. £250.
Guy's Hospital, S.E.—Female Clin. Asst. 1 guinea per session.
Halifax Royal Infirmary.—H.S. £200.

Hull Royal Infirmary.—Sen. H.S. £200. Asst. H.S. £150. Asst. V.D. Officer and Cas. £250.
Ipswich County Borough.—Asst. M.O.H. £500.
Italian Hospital.—H.S. £150.
Johannesburg, South African School of Mines.—Prof. of Phar. £1000. Also Professorships of Med., Surg., and Obstet. £750 each.
Kirkburton, Storthes Hall Asylum, near Huddersfield.—Asst. M.O. £400.
Lancashire County Council.—Two Asst. Disp. Tuberc. O.'s. £700.
Leamington Spa, Warneford, Leamington, and South Warwickshire General Hospital.—H.P. and H.S. £200 each.
Leeds Public Dispensary.—Res. M.O. £200.
London Temperance Hospital, Hampstead-road, N.W.—Cas. O. £200.
Maidstone, Kent County Ophthalmic Hospital.—H.S. £300.
Manchester Children's Hospital, Pendlebury, near Manchester.—Res. M.O. £150.
Manchester City.—M.O. £450.
Manchester Royal Infirmary.—H.S's.
Metropolitan Ear, Nose, and Throat Hospital.—Two Anæsth.
Middlesbrough, North Ormesby Hospital.—Asst. H.S. £200.
Miller General Hospital for South-East London, Greenwich-road, S.E.—M.O. X ray Dept. £75. Also Hon. Asst. Ophth. S.
National Dental Hospital, Great Portland-street, W.—Hon. Anæsth.
Newcastle-upon-Tyne City and County.—Maternity and Child Welfare M.O. £700.
Newcastle-upon-Tyne, Royal Victoria Infirmary.—Anæsth.
Northampton General Hospital.—H.S. and H.P. £200 each.
Nottingham General Hospital.—H.P. Also Cas. H.S. £200 each.
Reading, Berkshire Education Committee.—Asst. Med. Inspector of Schools. £500. Sch. Dent. £450.
Reading, Royal Berkshire Hospital.—H.S. £200.
Rochdale Infirmary and Dispensary.—Jun. H.S. £125.
Rotherham Hospital.—Jun. H.S. £150.
Royal Free Hospital, Gray's Inn-road, W.C.—Cas. O. £100.
Ryde, Royal Isle of Wight County Hospital.—Locum Tenens. £2 2s. per session. Also vacancy on Honorary Medical Staff.
Saint Pancras House and South Infirmary, King's-road and Pancras-road, N.W.—Asst. M.O. £300.
St. Peter's Hospital for Stone, &c., Henrietta-street, Covent Garden, W.C.—Jun. H.S. £75.
Sheffield, Jessop Hospital for Women.—Jun. H.S.
Sheffield Royal Hospital.—Cas. O. and Asst. Cas. O. £150 each.
Sheffield Royal Infirmary.—H.P. and H.S. £150 each.
Shirlett, near Much Wenlock, King Edward Memorial Sanatorium.—Res. Med. Supt. £450.
Southampton County Borough.—Sch. Dent. £500.
Southend-on-Sea, Victoria Hospital.—H.S. £200.
South London Hospital for Women, South Side, Clapham Common, S.W.—Female H.P. £100. Also Anæsth. 10s. 6d. per attendance.
Stamford, Rutland, and General Infirmary, Stamford.—H.S. £200.
Swansea County Borough.—Asst. M.O. £500.
Walsall General Hospital.—Female H.S. and Anæsth. £175.
Warwickshire County Council.—Female Asst. County M.O.H. £500.
West Bromwich and District Hospital.—Res. H.S. £200.
West Ham County Borough.—Asst. School M.O. £450.
West Riding County Council.—Asst. County M.O. £650. Two Sch. Med. Inspec. £500.
Wigan Infirmary.—Senior H.S. £250.
Wolverhampton and Staffordshire General Hospital.—H.S. £200.
Worthing, West Sussex and Chichester Joint Education Committee.—Asst. Sch. M.O. £500.

The Chief Inspector of Factories, Home Office, S.W., gives notice of a vacancy for a Certifying Surgeon under the Factory and Workshop Acts at Bollington.

The Home Secretary gives notice of a vacancy for a Medical Referee under the Workmen's Compensation Act, 1906, for the Sheriffdom of Lanark. Applications should reach the Private Secretary, Scottish Office, not later than June 5th.

Births, Marriages, and Deaths.

BIRTHS.

CASEMENT.—On May 11th, in Dublin, the wife of Major F. Casement, D.S.O., R.A.M.C., of a son.
CRAWFORD.—At the Claremont Nursing Home, Glasgow, on 15th May, to Dr. and Mrs. A. Muir Crawford, 10, Queen's-crescent, W., a son.
DEW.—On May 12th, at Rosetta, Horsham, Marion (née Johnston), R.R.C., wife of J. Wescott Dew, M.C., M.B., B.C., of a son.
DORMER.—On May 13th, at Charles-street, Berkeley-square, W., the wife of Captain E. H. Dormer, of a son.
NORMAN.—On May 5th, at Eastwood, Strawberry Hill, Middlesex, the wife of N. F. Norman, B.A. Cantab., M.R.C.S., L.R.C.P., of a daughter.
SAUNDERS.—On May 11th, at Pembroke-street, Pembroke Dock, the wife of Dr. E. A. Saunders, jun., of a son.

DEATHS.

BLOUNT.—On May 14th, suddenly, at Lawrence-road, Hove, Arthur Blount Blount, M.R.C.S. Eng., L.R.C.P. Edin., L.S.A., aged 61.
EAGER.—On Tuesday, May 11th, at St. Aubyns, Woodbridge, Suffolk, Wilson Eager, M.R.C.S., L.R.C.P., late Superintendent of St. Audry's Mental Hospital, Melton, Suffolk, aged 75.
PACKMAN.—On May 17th, at Trimworth-road, Folkestone, Augustus T. Vance Packman, M.R.C.S., L.S.A., in his 81st year.
TREVES.—On May 18th, at Gloucester-terrace, W., Wilfrid Warwick Treves, O.B.E., B.A., M.B., B.C. Cantab., F.R.C.S., R.A.M.C.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Medical Diary.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.
MEETINGS OF SECTIONS.
Thursday, May 27th.

UROLOGY: at 8.30 P.M.
Paper:
Sir Peter Freyer (President of the Section): Modern Progress in Urinary Surgery.

Friday, May 28th.

STUDY OF DISEASE IN CHILDREN (Hon. Secretaries—E. A. Cockayne, H. C. Cameron, C. P. Lapage): at 4.30 P.M.
Annual General Meeting—Election of Officers and Council for 1920-1921.
Exhibition of Cases:
Members who wish to show cases are requested to send particulars to Dr. A. Cockayne, 65, Westbourne-terrace, W.2.

EPIDEMIOLOGY AND STATE MEDICINE (Hon. Secretaries—William Butler, Major Greenwood): at 8.30 P.M.
Annual General Meeting—Election of Officers and Council for 1920-1921.
Paper:
Dr. Percival Hartley and Professor C. J. Martin, F.R.S.: The Apparent Rate of Disappearance of Diphtheric Bacilli from the Throat after an Attack of the Disease.
Members wishing to dine together before the Meeting (Welbeck Palace Hotel, 7 P.M.) are requested to communicate with Dr. Major Greenwood, Lister Institute, Chelsea Gardens, S.W.1, not later than May 26th.

MEDICO-LEGAL SOCIETY, 11, Chandos-street, Cavendish-square, W.
FRIDAY, May 28th.—8.30 P.M., Paper:—Dr. T. H. G. Shore: Sudden Deaths on Active Service. Dr. W. M. Fairlie will show a Specimen of a Suicidal Cut Throat.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith, W.
TUESDAY, May 25th.—10 A.M., Dr. D. Robinson: Gynæcological Operations. 5 P.M., Mr. T. Gray: Ulceration of the Stomach.
WEDNESDAY.—10 A.M., Dr. A. Saunders: Medical Diseases of Children. 2 P.M., Dr. Morton: X Ray Department.
THURSDAY.—2 P.M., Mr. B. Harman: Eye Department. 3 P.M., Mr. Baldwin: Practical Surgery.
FRIDAY.—10 A.M., Mr. Steadman: Dental Department. 5 P.M., Sir Robert Armstrong-Jones: Mental Disease. (Lecture III.)
SATURDAY.—12 noon: Mr. Sinclair: Surgical Anatomy of the Abdomen. 2 P.M., Dr. Owen: Medical Out-patients.
Daily:—10 A.M., Ward Visits. 2 P.M., In-patient and Out-patient Clinics and Operations.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.
MONDAY, May 24th.—2.30 P.M., Mr. J. B. Banister: Gynæcological.
TUESDAY.—9.45 A.M., Lieut.-Col. R. H. Elliot: Selected Eye Cases and Operations. 2.15 P.M., Selected Cases:—Mr. J. Howell Evans: Catheters—Uses and Methods of Use. 3.15 P.M., Dr. J. Oliver: The Age Incidence of Some Cutaneous Disorders. 4.30 P.M., Lecture:—Dr. Manson-Bahr, D.S.O.: The Diagnosis of Fevers, with Special Reference to those of the Tropics and Sub-tropics.
WEDNESDAY.—2.30 P.M., Dr. W. J. Oliver: Dermatological.
THURSDAY.—2.30 P.M., Mr. N. Fleming: Eye Cases. Dr. J. Metcalfe: Radiology.
FRIDAY.—2.30 P.M., Dr. C. G. Sundell: Diseases of Children.
SATURDAY.—3 P.M., Mr. Carson: Selected Surgical Cases.
Daily:—2.30 P.M., Operations, Medical and Surgical Clinics, &c.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, W.C. 1.
MEDICAL SCHOOL.
MONDAY, May 24th.—Whit Monday.
TUESDAY, May 25th.—2-3.30 P.M., Out-patient Clinic: Dr. Grainger Stewart. 3.30 P.M., Dr. Greenfield: Cerebro-Spinal Fluid.
WEDNESDAY, May 26th.—2 P.M., Mr. Armour: Surgical Treatment of Tumours of the Spinal Cord. (I.) 3.15 P.M., Mr. Scott: The Treatment of Menière's Disease.
THURSDAY, May 27th.—2-3.30 P.M., Out-patient Clinic: Dr. Farquhar Buzzard. 3.30 P.M., Dr. Aldren Turner: Demonstration of Ward Cases.
FRIDAY, May 28th.—2-3.30 P.M., Out-patient Clinic: Dr. Gordon Holmes. 3.30 P.M., Dr. Greenfield: Cerebro-Spinal Fluid.
Fee for Post-Graduate Course £7 7s. C. M. HINDS HOWELL, Dean.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.
Special Post-Graduate Courses in Diseases of Children, illustrated by cases, specimens, and radiograms.
1.—Dr. F. Langmead: Disorders of the Ductless Glands in Children (in the Museum)—
TUESDAY, May 25th, AND FRIDAY.—11.30 A.M., Lecture V., Disorders of the Thymus Gland. Lymphatism. Lecture VI., Infantilism.
5.—Mr. A. T. Pitts: The Pathology, Results, and Treatment of Dental Sepsis in Children (in the Out-patient Department)—
WEDNESDAY, May 26th.—4 P.M., Lecture II., The Local and General Results of Dental Sepsis.

KING'S COLLEGE HOSPITAL MEDICAL SCHOOL (UNIVERSITY OF LONDON).
A Course of Post-Graduate Lectures on Syphilis is being given by various members of the staff of King's College Hospital during the present year.
FRIDAY, May 28th.—9.15 P.M., Dr. J. C. Briscoe: Syphilis in Medical Practice (Visceral Lesions other than Cardiovascular).

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.

TUESDAY, May 25th.—2 P.M., Dr. D. Grant: Throat Department. 2.30 P.M., Demonstration:—Dr. Punch: Cases Unsuitable for Hospital Treatment.

WEDNESDAY.—10.30 A.M., Dr. Punch: Demonstration of Museum Specimens. 2 P.M., Dr. Gosse: Cardiographic Department. 2.30 P.M., Demonstration:—Dr. Beaumont: Cases in Children.

THURSDAY.—10.30 A.M., Dr. Burrell: Artificial Pneumothorax. 2.30 P.M., Demonstration:—Dr. Wingfield: Cases in Children.

FRIDAY.—2 P.M., Dr. Melville: X Ray Department. 2.30 P.M., Demonstration:—Dr. Jex-Blake: Cases in Children.

SATURDAY.—1 P.M., Dr. Batty Shaw: Special Demonstration in the Out-patient Department.

UNIVERSITY OF LONDON.

Advanced Lectures in Physiology to Students of the University and others interested in the subject.

A Course of Eight Lectures on the Bio-Chemistry of Sterols will be given in the Physiological Laboratory of the University, South Kensington, S.W.

TUESDAY, May 25th.—5 P.M., Lecture II., Mr. J. A. Gardner.

UNIVERSITY OF SHEFFIELD—FACULTY OF MEDICINE POST-GRADUATE LECTURES, at the Sheffield Royal Hospital.

WEDNESDAY, May 26th.—4 P.M., Prof. A. Hall: Diagnosis of Nervous Disease. (I.)

SALFORD ROYAL HOSPITAL AND ANCOATS HOSPITAL POST-GRADUATE DEMONSTRATIONS, at the two Hospitals alternately.

THURSDAY, May 27th.—4.30 P.M., Dr. Jenkins: On the Collection of Pathological Material for Examination. (At Salford Royal Hospital.)

Communications, Letters, &c., to the Editor have been received from—

A.—Dr. W. Allingham, Orsett; American Public Health Association, Boston; Académie Royale de Médecine de Belgique, Secrétaire perpétuel.

B.—British Waterworks Association, Lond.; Board of Education, Lond.; Miss W. F. Buckley, Lond.; Dr. H. S. Banks, Motherwell; Mrs. C. Brereton, Lond.; Sir J. Barr, Liverpool; Prof. A. E. Boycott, Lond.; Dr. R. Batten, Lond.; Col. R. J. Blackham; British Italian Commercial Association, Lond., Sec. of; Dr. A. Blackhall-Morison, Lond.; Dr. C. Bolduan, Washington.

C.—Dr. S. D. Clippingdale, Lond.; Dr. F. G. Crookshank, Lond.; Mr. F. R. Cave, Bath; Sir James Crichton-Browne, Lond.; Prof. E. L. Collis, Cardiff; Dr. R. Craik, Lond.; Chelsea Hospital for Women, Lond.; Messrs. J. and A. Churchill, Lond.; Chicago School of Sanitary Instruction.

D.—Dr. W. Dyson, Manchester; Dr. T. B. Davies, Lond.; Dr. G. K. Dickinson, Jersey City.

E.—Dr. G. S. Earl, Plymouth; Dr. E. Emrys-Roberts, Cardiff.

F.—Mrs. Finlayson, Leeds; Dr. Fergus, Glasgow; Dr. Z. P. Fernandez, Leeds; Col. F. E. Fremantle, M.P., Hatfield; Mr. W. R. Fairbrother, Lond.

G.—General Medical Council, Lond., Registrar of; Mr. L. M. Griffiths, Bristol.

H.—Messrs. William Heinemann (Medical Books), Lond.; Dr. G. R. Hall, Glastonbury; Mr. P. M. Heath, Lond.; Harrogate Wells and Baths, General Manager of; Mr. J. T. Henderson, Pietermaritzburg.

I.—Incorporated Institute of Hygiene, Lond.; Dr. E. C. B. Ibotson, Corris.

J.—Dr. R. Jardine, Glasgow; Dr. G. R. Jones, Birmingham.

K.—Miss A. Kenealy, Lond.; King's College Hospital Medical School, Lond.

L.—League of Mercy, Lond.

M.—Mission to Lepers, Lond., Editorial Sec. of; Mercantile Marine Association, Lond.; Ministry of Health, Lond.; Dr. H. Maclean, Lond.; Manchester and District Radium Institute; Medico-Legal Society, Lond.; Dr. A. Macphail, Lond.; Mr. A. MacDonald, Washington.

N.—National Safety Council, Chicago; North-East London Post-Graduate College; National Hospital for the Paralysed and Epileptic, Lond., Dean of; Mr. R. D. Noble, Lond.; National Council for Combating Venereal Disease, Lond., Sec. of.

O.—Dr. J. O'Conor, Buenos Aires; Dr. F. A. Osborn, Dover.

P.—Sir Arthur Pearson, Lond.

R.—Royal Medical Benevolent Fund, Lond.; Dr. W. C. Rivers, Barnsley; Royal Dental Hospital of London; Royal Society, Lond.; Royal Mail Steam Packet Co., Lond.; Dr. J. D. Rolleston, Lond.; Royal Institution of Great Britain, Lond.; Dr. J. Reynolds, Lond.; Royal Faculty of Physicians and Surgeons, Glasgow, Sec. of; Dr. S. M. Ross, Derby.

S.—Sir A. Stanley, Lond.; Save the Children Fund, Lond.; Scottish Board of Health, Edinburgh; Prof. W. Stirling, Manchester; Dr. E. W. Scripture, Lond.; Dr. A. F. Sladden, Swansea; Dr. E. B. Sherlock, Lond.; Society for the Study of Inebriety, Lond.; St. Marylebone General Dispensary, Lond.; Society for the Prevention of Venereal Disease, Lond., Hon. Sec. of.

T.—Dr. W. E. F. Tinley, Sandsend; Dr. E. T. Thompson; Dr. W. W. C. Topley, Lond.; Dr. A. H. Thompson, Lond.; Mr. O. P. Turner, Hastings.

U.—Mr. S. Unwin, Lond.

V.—*Vaccination Enquirer*, Lond.

W.—Mr. R. Warren, Lond.; West London Hospital Post-Graduate College; War Office Publicity Dept., Lond.; Dr. F. J. Waldo, Lond.; Dr. H. M. Woodcock, Bromley.

Communications relating to the editorial business should be addressed exclusively to the Editor of THE LANCET, 423 Strand, London, W.C. 2.

Dr. A. C. Magian has been awarded the Médaille du Roi Albert for services rendered during the war. Last year the Belgian community in Manchester presented him with a testimonial, and King Albert sent him a personal letter of thanks, while he received a silver casket and travelling bag from a number of his medical colleagues associated with the work of the Manchester French Hospital.

Notes, Short Comments, and Answers to Correspondents.

COST AND PENALTIES OF CITY SMOKE.

THE results of an inquiry into the cost and penalties of city smoke have just been issued by the "Air Pollution Advisory Board of the Manchester City Council" (founded in 1912), under the title "The Black Smoke Tax," and attention is drawn, amongst other matters, to the effects of black smoke on the washing bill. It is asserted that the washing bill alone costs £242,705 more than if the air was as clean as that of Harrogate, and later, that "it would be difficult to cite any one cause so productive of loss—moral, mental, and material—as the Smoke Evil." Because of the ever-present accumulating grime and dirt from smoke a labourer's wife has to spend an hour longer over the family washing in Manchester than if she lived in Harrogate. There are in the city 112,616 small houses where the housewives, as a rule, do their work single-handed. "If they all take one hour longer each week to do the washing than they would do if they lived in a clean town, the sum total of time wasted in the course of a year is equivalent to 5,850,000 hours or 668 years. This is the penal sentence which the housewives of Manchester who do their washing at home serve each year for black smoke!" The smoke tax, however, is levied also on buildings, merchandise, wall paper, furniture, clothes, curtains, gardens and plant life, and almost every object, animate and inanimate, in the city; also on health, as is often all too evident on the personal appearance of the city dweller.

The investigation was conducted on lines similar to those adopted in Pittsburgh, U.S.A., where it was found that smoke damage amounted to £4 per head of the population per annum. Questionnaires were issued to all sorts of people—architects, householders, hotel proprietors, restaurant keepers, owners of warehouses, works and gardens, and business men. Architects estimated that a clean atmosphere would reduce the cost of upkeep of buildings from 20–50 per cent. The answers of painters "made it clear that Manchester is a painter's paradise"—in a sense quite different from the phrase as applied to Paris by Thackeray. Window curtains last only half as long in Manchester as in Blackpool. The extra protection needed by printed, bleached, and dyed goods in warehouses amounts to a large sum annually. Taking it all in all, it is computed that black smoke costs Manchester for washing and in damage and deterioration of houses and buildings and goods at least £750,000 a year more than if the air were as clean and smoke-free as that of Harrogate—i.e., about £1 per head of the population of the city.

HOW NOT TO GROW.

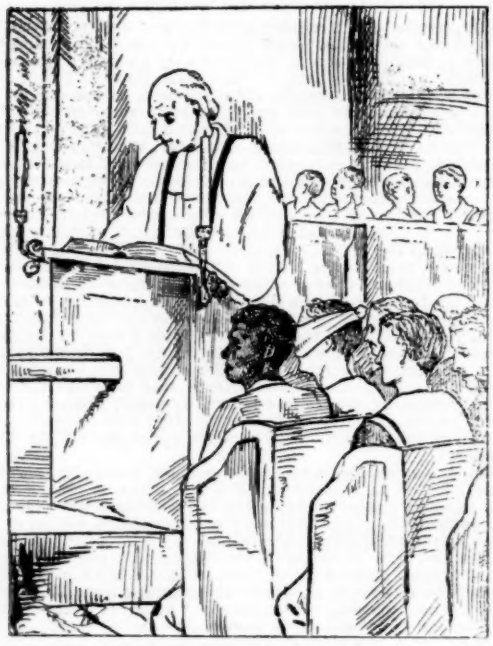
THAT none of us by taking thought can add a cubit to his stature is, we gather from a correspondent who asks us to let him into the secret of growing at will, a fact that still bears repetition. A growing boy, a shade under the height demanded by the Services, need not give up hope, especially if his chest and general development is poor. Breathing exercises and careful physical training will often add the required inch or more. But to hold out similar hope to the fully grown adult is to deceive him cruelly. If he holds his knees braced back, his back erect and chin well in, a man makes the most of his inches, and not the most specious professor can add a jot, advertise he never so wisely.

Our correspondent, whose height is 66 inches, and who would add a few by reason of the advantage he supposes they would confer, tells us there are many who share his ambition, and not a few who are anxious (for a consideration) to undertake to gratify it. He is hopeful of growing two or three inches, while admitting that natural growth has stopped; the thoroughness of his investigation of ways and means deserves a worthier subject. One scheme he has investigated is to thicken all the cartilages of the spine, legs, ankles, "&c.," in a few weeks' time by exercise, thus stretching out the natural height by several inches; two professors of Denver have a machine to do the stretching. Was not something of the kind in use in the Dark Ages for the persuasion of the heretic? We advise our lesser brethren to have nothing to do with professional elongators of any nationality. If they will learn to hold themselves erect, physically and otherwise, and abstain from contributing to the income of any who offer to make them grow, we assure them that they will not lose by abandoning the attempt to supplement Nature. Inches do not make men, nor do advertisements. For the rest, this is but the latest, and not the least, pathetic and lamentable instance of the fraud and theft which are permitted to flourish in the guise of advertisements with their revoltingly false "testimonials."

A HOSPITAL APPEAL OF THE LAST GENERATION.

THE urgent appeal to place the hospitals on a satisfactory financial footing, which appears elsewhere in our present issue, had its parallel in the times of our fathers, but a parallel only in direction and not in methods of procedure. Thirty

FIG. 1.



SEAMEN'S HOSPITAL, GREENWICH.

years ago Sir Henry Burdett headed a chapter setting forth the needs of the hospitals of the metropolis with Martial's admirable motto:

"Life is not to live, but to be well."

The need of hospitals, he then wrote, arises not from any special calamity which, when once overcome, is completely stamped out. "Year after year these huge institutions stand towering over the crowded, busy streets, homes of refuge for the sick, the dying, or disabled, although they are mainly dependent on chance subscriptions for maintenance. That these subscriptions come in is evident enough from the fact that the institutions continue to remain open."

FIG. 2.

WESTMINSTER HOSPITAL.

Each generation has its own particular method of dealing with the problem of hospital finance and of appealing to the public. We reproduce here three of the illustrations designed in 1890 to set forth the particular services to humanity rendered by three metropolitan institutions. The first was issued by the Seamen's Hospital Society for its "Dreadnought" Hospital of 225 beds at Greenwich, "free to the whole maritime world." The wide range of age and nationality among its patients emerges clearly enough from the picture. The second shows a corner of the out-patient room of the Westminster Hospital (205 beds), with the evident intent of making known also the "large and flourishing training school and home for nurses." The third instantly turns the mind to the patients of Charing Cross Hospital, "more than two-thirds of which are cases of accident or emergency." The stretcher-bearers and nursing staff of the period are doubtless correctly depicted.

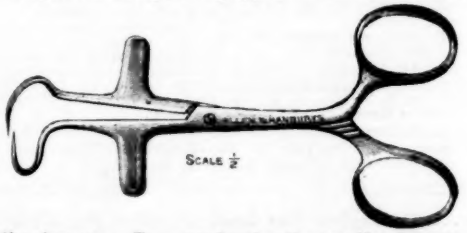
We obtain our realism to-day in a very different manner, and we wonder whether our statistics and balance-sheets speak as clearly. There was, of course, no comic side to these pictures when they appeared.

FIG. 3.

CHARING CROSS HOSPITAL.

IMPROVED TONGUE FORCEPS.

THE tongue forceps here illustrated is an improvement on the older model, inasmuch as rotation is prevented by the two wings. The tongue is gripped half an inch from its tip



by the forceps. To extrude the tongue the forceps are swung round on the puncture point as centre to opposite cheek. The forceps are constructed to lie flat on the face, thus preventing any leakage when using a closed anæsthetic mask. Messrs. Allen and Hanburys, Ltd., are the manufacturers.

VICTOR A. L. E. CORBOULD, M.D. Brux., M.R.C.S., L.R.C.P. Lond.

Kensington, W.